



16 February 2023

Committee Secretary  
Senate Education and Employment Committees  
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Parliament House  
Canberra ACT 2600  
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## Disruption in Australian school classrooms

This submission is made February 2023 on behalf of the Food Intolerance Network, which consists of 19,703 current members (verify at <https://www.facebook.com/groups/128458328536/members>), mostly in Australia and New Zealand but with members in USA, UK, EU, Canada and several other countries and includes dietitians and other health professionals. The Network provides independent information about the effects of food on behaviour, health and learning in both children and adults through [www.fedup.com.au](http://www.fedup.com.au) which has had over 13.6 million visitors.

Responsibility for comments is taken by Howard Dengate BSc (Food Sci UNSW), PhD (Plant Sci LC), Cert Plant-based Nutrition (eCornell) and Sue Dengate BA (Psych UNSW) DipEd (UNSW). The support of Network members is acknowledged.

### **There is a proven practical way to actually reduce disruption in Australian classrooms.**

If you don't believe us, please view these three short videos. These were large interventions we made at three separate schools, each with amazing results. Larger copies of the videos are also provided (1).



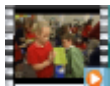
<https://youtu.be/5JVrFeosiNI> (4:51)

Principal's quote: *"They were able to relate better to their peers in general and also to concentrate better in class which means that you're having fewer behavioural problems"*

Teacher 1 quote: *"It's just been much more harmonious in the classroom and that's had an effect on the classroom as a whole"*

Teacher 2 quote: *"...far more sociable, and amiable with each other and settled"*

Teacher 3 quote: *"I found that certain kids had a longer attention span, and they were able to concentrate and work more effectively"*



<https://youtu.be/K9KhjVLKRDo> (3:07)

Principal's quote: *"Over this last week, we haven't had one student on detention. That speaks volumes for itself."*

Teacher quote: *"They listen to instructions better and they're not so impulsive... they think before they act".*



[https://www.youtube.com/watch?v=75knC\\_Zqww0](https://www.youtube.com/watch?v=75knC_Zqww0) (3:25)

Teacher 1 quote: *"...the more active students in the classroom - they've been more settled, definitely ... I looked over **a sea of calmness**, it was wonderful"*

Teacher 2 quote: *"One student in particular that I had a lot of trouble with, a very fidgety child, couldn't focus, couldn't work, now sits quietly the whole time ... reading a lot better, writing on the lines in his workbooks instead of all over the page and he's a lot more pleasant to be around and less disruptive in the class"*

The approach used is based on Sydney's Royal Prince Alfred Hospital Allergy Unit's elimination protocol tested on over 30,000 patients, avoiding approximately 60 additives they have identified that can affect children's behaviour

Even the National Healthy School Canteens Guidelines 2014 acknowledge that an unknown number of children are affected by these specific food additives (2) but the implications are not evident in current school canteen practice.

In fact, in 2003 when an entire class of six-year-olds were asked to avoid additive-free food at home and at school for two weeks, **more than half** of the parents reported an improvement in their child's behaviour (3). Similarly, an Australian pilot trial showed that more than half of school age children may be affected by these common food additives (4). More and more recent research confirms these effects (5).

If even half this number were disruptive in class, learning would be completely disrupted. As it is (6).

Parents, teachers and students are very positive about this approach (7) – see some of their comments in the reference.

**The appropriate educational and public health response would be to reduce the use of food additives that contribute to behavioural and physical disorders.**

### **What happens if you reduce food additives fed to children?**

**The largest study of its kind ever done (8)** with over a million students at 803 New York schools showed that removal of additives from school meals was strongly associated with a reduction of learning disabilities and improved academic achievement.

*"7.5% of a million children – 75,000 children – ... "had become able to perform at the level normal for their age. These were the children that no other efforts had helped".*

*"No other school district could be located which reported such a large gain above the rest of the nation so quickly in a large population".*

**The massive UK Southampton study (9)** in 2007 found that a range of artificial colourings and a preservative could cause significant behavioural effects detectable by parents. Researchers concluded:

*"normal, healthy children"* can be affected, not just in those with learning or behaviour problems.

*"children's ability to benefit from schooling"* can be reduced by additives.

As a result, since 2010, many artificially coloured foods in the EU carry a mandatory warning which has virtually removed such food dyes from their food, but this has not occurred in Australia:

**WARNING:** *"May have an adverse effect on activity and attention in children"*

**The longest running study (10)** was a five-year trial at Wisconsin's Appleton Central Alternative High School for troubled teenagers who were initially described as *"rude, obnoxious and ill-mannered"*. Designed by former parole officer Barbara Stitt and her biochemist husband Paul Stitt, the program replaced vending machines and junk food by bottled water, fresh juice and healthy preservative-free cafeteria meals and snacks.

*"According to Principal LuAnn Coenen, negative behaviors such as vandalism, drug and weapons violations, dropout and expulsion rates, and suicide attempts are virtually non-existent."*

From the award winning documentary Super Size Me:

*"...they've changed things around, not through discipline but through diet"*



<https://www.youtube.com/watch?v=Mm0XvU5rOOs> (1:40)

### **But our kids eat a healthy diet!**

Studies have shown that people eat far more food additives than they recognise because the food industry has responded to consumer concern by hiding them. The strongest example is that virtually everyone is eating the propionate bread preservatives 280-283 on a daily basis, even in foods labelled "no artificial preservatives", because it now appears on the INGREDIENTS label as 'cultured' OR 'fermented' AND 'wheat/wheatflour/flour/whey/dextrose/etc, while claiming "no artificial preservatives". Consumers have no idea this is the same preservative chemical, but now in unregulated amounts.

This matters because propionates have been proven to affect irritability, restlessness, inattention and sleep disturbance in children (11) and most recent research describes neurotoxicity of propionates linked to autism and dementia (12).

Here is the verbatim response from a 15 year old student (13):

Mother: *"Do you find 282 [the bread preservative] affects you that badly?"*

Teenager: *"HELL YEAH, I find a huge almost uncontrollable anger building up inside me, for no reason, and I feel I just want to punch something or someone."*

And from a teacher (14)

*"I used to get very angry quickly and then in a split second I would feel like crying my eyes out ... If the kids in my class were feeling like I was, I can understand why they behaved the way they did."*

### **Why won't this Committee recommend this form of intervention?**

- Because food additive regulators do not consider any evidence regarding behaviour or learning in approving the widespread use of food additives, or even require testing on children. Therefore regulators will not ban them, or support such an action.
- Because this form of intervention is seen as crossing too many disciplinary boundaries and so is too hard and beyond the scope, expertise and understanding of educators and the medical profession generally.
- Because you think that you have heard all this before and, incorrectly, that it has been discredited. It has not. Food industry lobbying and inaction has led to your pre-judgement about this proven cause of disruption.
- Because for policy makers such as yourselves, it is always more appealing to attempt to quash the symptoms than to undertake the more difficult task of addressing the causes.

**So there it is. The Committee members have the answer in their hands.**

What are the chances of this new information being heard, or effective intervention being attempted? There are huge countervailing pressures from the food industry and from the many narrow disciplines involved, so chances are not great. But a response like "more research is needed" is not acceptable. A serious trial of the approach would be.

Nevertheless we are willing to address the committee in person if you have sufficient interest AND a willingness to hear and act.

Dr Howard Dengate

Ms Sue Dengate

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[www.fedup.com.au](http://www.fedup.com.au) The Food Intolerance Network provides independent information about the effects of food on behaviour, health and learning in both children and adults, and support for families using a low-chemical elimination diet free of additives, low in salicylates, amines and flavour enhancers (FAILSAFE) for health, behaviour and learning problems. ABN 72 705 112 854

## References

1. Larger versions of the three videos are attached to the submission. 1PalmerIsland, 2NanaGlen, 3CoomaNorth.
2. See p45 of <https://www.health.gov.au/resources/publications/national-healthy-school-canteens-guidelines-for-healthy-foods-and-drinks-supplied-in-school-canteens>
3. 2003 – The Dingle School, Haslington, Cheshire, UK – an entire class of 6-year-olds was asked to avoid additive-free food (39 additives) at home and at school for two weeks – the trial was monitored by Professor Jim Stevenson from Southampton University and filmed by ITV – ***“57 per cent of parents reported an improvement in their child's behaviour and 56 per cent recorded better sleep patterns and cooperation”***
4. How many children are affected by food additives? - a pilot trial. Dengate H, Dengate S, Watt M (2008). J Food Intolerance No 2.  
<https://fedup.com.au/images/stories/JFICoomaNorth2008.pdf>

**Abstract:** OBJECTIVE: To determine the proportion of children affected behaviourally or physically by 56 common food additives. METHOD: Behaviour and health were rated for 49 children who avoided food additives for two weeks and for 46 children who continued with their normal diet. RESULTS: Rating 14 behavioural symptoms, teachers reported that 69% of all children improved at the end of two weeks; parents reported that 53% improved. For children able to show improvement, teachers reported that 89% improved; parents reported that 59% improved. Parents observed that at least 25% of all children improved in sleeping, headaches, stomach aches, rashes or bedwetting by avoiding food additives for two weeks in a normal school setting. CONCLUSION: **More than half of school age children may be affected by common food additives.** IMPLICATIONS: The appropriate educational and public health response would be to reduce the use of food additives that contribute to behavioural and physical disorders.

5. Examples of 2022 papers:

Chronic exposure to synthetic food colorant Allura Red AC promotes susceptibility to experimental colitis via intestinal serotonin in mice

<https://www.nature.com/articles/s41467-022-35309-y>

A Review of the Association of Blue Food Coloring With Attention Deficit Hyperactivity Disorder Symptoms in Children <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9573786/>

Potential impacts of synthetic food dyes on activity and attention in children: a review of the human and animal evidence <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9052604/>

**Abstract:** Concern that synthetic food dyes may impact behavior in children prompted a review by the California Office of Environmental Health Hazard Assessment (OEHHA). OEHHA conducted a systematic review of the epidemiologic research on synthetic food dyes and neurobehavioral outcomes in children with or without identified behavioral disorders (particularly attention and activity). We also conducted a search of the animal toxicology literature to identify studies of



neurobehavioral effects in laboratory animals exposed to synthetic food dyes. Finally, we conducted a hazard characterization of the potential neurobehavioral impacts of food dye consumption. We identified 27 clinical trials of children exposed to synthetic food dyes in this review, of which 25 were challenge studies. All studies used a cross-over design and most were double blinded and the cross-over design was randomized. Sixteen (64%) out of 25 challenge studies identified some evidence of a positive association, and in 13 (52%) the association was statistically significant. These studies support a relationship between food dye exposure and adverse behavioral outcomes in children. Animal toxicology literature provides additional support for effects on behavior. Together, the human clinical trials and animal toxicology literature support an association between synthetic food dyes and behavioral impacts in children. **The current Food and Drug Administration (FDA) acceptable daily intakes are based on older studies that were not designed to assess the types of behavioral effects observed in children.** For four dyes where adequate dose-response data from animal and human studies were available, comparisons of the effective doses in studies that measured behavioral or brain effects following exposure to synthetic food dyes indicate that the basis of the ADIs may not be adequate to protect neurobehavior in susceptible children. **There is a need to re-evaluate exposure in children and for additional research to provide a more complete database for establishing ADIs protective of neurobehavioral effects.**

6. According to the latest survey results from the PISA program for International Student Assessment

- Australian school scores have plummeted globally (in maths, reading and science) over the last 18 years (see graph in reference)
- New Zealand and Australian students now rank 27th and 29th of 79 countries for maths
- 7 Asian countries are top, followed by many European countries with the UK at 18<sup>th</sup>.

Experts can't explain this dramatic decline, or why UK for instance went up since 2010 in maths and reading - but it is pretty obvious to us that our food regulators FSANZ are to blame for not following the 2010 lead of the European food standards agency regarding artificial colours. EU countries are generally flat-lining, not declining, but they have always used few artificial colours. **Europe acts, Australia doesn't.**

More in <https://www.fedup.com.au/news/blog/food-colours-shame-on-you-fsanz>

7. Parents, teachers and students are very positive about this approach:

#### **What the parents say**

*"My son has been on the diet since year 1 and he is now in year 12 and is the best thing we could have done for him"* – Charlotte from story [\[1353\]](#)

*"My failsafe son has gone from distracting others to being named **student of the week** for great work habits! - from story [\[338\]](#)*

*"School principal took me aside and said how amazingly well my son is doing and that **whatever I am doing to keep it up because it's working**"* – Megan from story [\[1494\]](#)

***“...3 weeks on the diet and I have a different kid!! The days when I mess up accidentally I can tell and so can the school”*** – Madonna from story [\[1420\]](#)

***“As a naturopath and nutritionist I thought I was conscious of what was healthy ...My son is now 14 yrs of age and thriving academically and socially... I sing the praises of Failsafe to parents far and wide...My son has a future because of failsafe!”*** – Vicky [\[1625\]](#)

#### What the teachers say

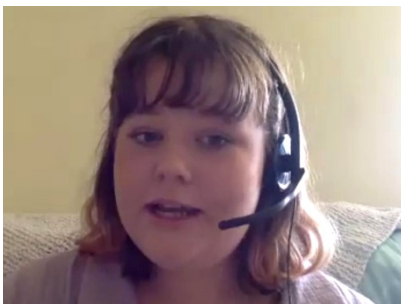
***“I work as a teachers’ aide in special schools ... the child that has a strict diet ... the child is a great deal calmer and easier for us to manage”*** – Sheree from story [\[1509\]](#)

***“I am a teacher ... I now recommend fedup to as many people who will listen...”*** – Penelope from story [\[1353\]](#)

***“I am one of the ...principals that actually recommend this diet ALL the time. I truly believe it makes such a difference for kids’ ability to focus, to persevere without too much frustration and emotional outbursts...”*** – Jen from story [\[1353\]](#)

#### What the students say

***“I am 18... I’m currently in university... I have ASD (Autism), GAD (Generalised Anxiety Disorder), ADHD and Depression... I have struggled all my life with food intolerances... I recently went back on failsafe because my symptoms were getting out of hand. I have found massive improvements...”*** Jemma - [\[1594\]](#) **COURAGE AWARD**



[9min 25secs](#)

***“I am becoming progressively more organised... At uni I have been doing a lot more work than usual. I am feeling a lot more settled and focused, and I am able to memorise things a lot easier than before the diet”*** – Ellas from story [\[023\]](#)

<https://www.fedup.com.au/news/blog/diet-at-school>

8. <https://fedup.com.au/images/stories/NewYorkCityPublicSchools.pdf>

Schoenthaler, SJ, Doraz WE, Wakefield JA. 1986 – The Impact of a Low Food Additive and Sucrose Diet on Academic Performance in 803 New York City Public Schools, International Journal of Biosocial Research, Vol. 8(2): 185-195

Schoenthaler, SJ, Doraz WE, Wakefield JA. 1986a – The Testing of Various Hypotheses as Explanations for the Gains in National Standardized Academic Test Scores in the 1978-1983 New York City Nutrition Policy Modification Project, International Journal of Biosocial Research, Vol. 8(2): 196-203

9. “Food additives exacerbate hyperactive behaviours (inattention, impulsivity, and overactivity) in children at least up to middle childhood. Increased hyperactivity is associated with the development of educational difficulties, especially in relation to reading, and therefore these adverse effects could **affect the child’s ability to benefit from the experience of schooling**. These findings show that adverse effects are not just seen in children with extreme hyperactivity (i.e., ADHD), but **can also be seen in the general population and across the range of severities of hyperactivity**”.

Southampton study: 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.

<https://pubmed.ncbi.nlm.nih.gov/17825405/>

10. J Keeley et al, Case Study: Appleton Central Alternative Charter High School's Nutrition and Wellness Program, 2004 <https://www.sustainlv.org/one/wp-content/uploads/Appleton-school-food-study.pdf>
11. Dengate, S. and A. Ruben (2002). "Controlled trial of cumulative behavioural effects of a common bread preservative." J Paediatr Child Health 38(4): 373-6.  
<https://pubmed.ncbi.nlm.nih.gov/12173999/>

**Abstract:** OBJECTIVE: Many anecdotes and one scientific report describe cumulative behavioural effects of bread preservative on children. METHODOLOGY: Twenty-seven children, whose behaviour improved significantly on the Royal Prince Alfred Hospital diet, which excludes food additives, natural salicylates, amines and glutamates, were challenged with calcium propionate (preservative code 282) or placebo through daily bread in a double-blind placebo-controlled crossover trial. RESULTS: Due to four placebo responders, there was no significant difference by ANOVA of weighted placebo and challenge Rowe Behaviour Rating Inventory means, but a statistically significant difference existed in the proportion of children whose behaviours 'worsened' with challenge (52%), compared to the proportion whose behaviour 'improved' with challenge (19%), relative to placebo (95% confidence intervals 14-60%). CONCLUSIONS: Irritability, restlessness, inattention and sleep disturbance in some children may be caused by a preservative in healthy foods consumed daily. Minimizing the concentrations added to processed foods would reduce adverse reactions. Testing for behavioural toxicity should be included in food additive safety evaluation <https://www.ncbi.nlm.nih.gov/pubmed/12173999>

12. See most recent references in <https://www.fedup.com.au/news/blog/harm-from-bread-preservative-confirmed>
13. [\[206\] 282: A teenager talks about the bread preservative 282](#)
14. [\[207\] 282: " very moody, stressed out and anxious " \(September 2002\)](#)