Food colours 101

Should we ban artificial colourings from foods our children eat regularly? The evidence is mixed, but some parents need no more convincing. Helen Signy reports

It began 20 minutes after James had downed a large bottle of brightly coloured sports drink. Unable to sit still any longer at the class picnic, the Sydney youngster tore off, chasing his sister and her friends with teeth bared and fists hitting out.

That day he bit two children, ran away, and finished the evening in a tantrum of tears, hurling objects around the living room, grunting and moaning like a caged animal.

"It's not me, it's my body," claims the seven-year-old. "When I eat things that are red or yellow it makes me angry."

THERE'S MOUNTING concern around the world that food additives, particularly artificial colourings, are to blame for behavioural changes and other health problems in some children.

"Particularly foods that are marketed to children tend to contain these chemicals," says Dr Kerryn Phelps, an integrative GP from the Uclinic in Sydney. "I see a lot of cases where people have tried everything. I cut out all the colourings and preservatives from their diet and their children's behaviour transforms."

Artificial food colourings are currently being removed from many foods in the UK, and across Europe warnings are being placed on products that contain them. Is it time to act here?

WHAT'S THE PROBLEM?

Colours have been added to foods for centuries to make them look better and seem more flavoursome. They also serve to offset colour loss due to exposure to light and temperature extremes, and can protect flavours and vitamins sensitive to sunlight during storage.

FOOD ADDITIVES

Colours that most commonly produce reactions

Food additives are listed on product labels with a name and/or a number.

Artificial colours

102 tartrazine
104 quinoline yellow
110 sunset yellow
122 azorubine/ carmoisine
123 amaranth
124 ponceau red
127 erythrosine
129 allura red
132 indigotine
133 brilliant blue
142 green S
143 fast green FCF
151 brilliant black
155 chocolate brown

Natural colours

160b annatto

A range of artificial food colours is used in Australian foods. In some children who are intolerant to them, eating small quantities may result in hives, irritable-bowel symptoms, headaches, itchy skin rashes and asthma.

Anecdotally, parents have known for years that sweet junk food and fizzy drink can make their children a little hyper – it's usually the sugar that gets the blame. But it wasn't until 2007 that scientific proof emerged that artificial food colourings could be affecting kids, and not just those with ADD.

Researchers at the University of Southampton in the UK studied nearly 300 three-year-old and eight/nine-year-old children to see whether six of the brightest food colours had an adverse effect on their behaviour. They did.

"Artificial colours or a sodium benzoate preservative (or both) in the diet result in increased hyperactivity in three-year-old and eight/nine-year-old children in the general population," the researchers concluded in their study, which was published in *The Lancet*.

The study looked at tartrazine (E102), quinoline yellow (E104), sunset yellow (E110), carmoisine (E122), ponceau 4R (E124) and allura red AC (E129).

"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," it concluded.

It doesn't mean every child will be affected by eating artificial food colourings – it depends which ones, if any, they are sensitive to and how much they consume.

However, the Southampton study shows that at least some children in the general population will react to the chemicals.

Natural and hidden dangers

"All natural" on the label is a big selling point. But watch out: potential problems can be hidden.

Natural food colouring can produce reactions in some people too. Annatto (160b), a orange-yellow found in many dairy products, is one to look out for.

Australia has a loophole whereby "composite" foods that constitute less than 5% of a product don't need to have all their component ingredients listed. And many flavours are permitted in Australia without identification by name or number because they're trademarked; however, they're all assessed as safe by the World Health Organisation.

"Ignore anything on the front of the packet," says Sue Dengate, founder of Australia's Food Intolerance Network. "You have to read and understand the ingredients list. Manufacturers can use names and numbers – people have got used to thinking numbers are nasty, but they don't look at the names."

Sue Dengate, the founder of Australia's Food Intolerance Network, believes the problem has even wider implications because other children in a class of hyped-up kids will suffer from the disruption. "A big majority would be calmer and quieter if we didn't have these things," she says.

THE INTERNATIONAL RESPONSE

The catch cry in food marketing these days is "clean labelling". People want products that are natural and that contain as few additives as possible.

In response, some multinational food manufacturers are working on voluntarily removing additives, including food colourings, from their products.

Last April, the UK Food Standards Agency, a food safety watchdog with no legislative power, called for the six food colours used in the Southampton study to be phased out in the European Union. An enforceable ban would have to be made by the European Union.

What you can do

If your child has symptoms, it's important not to self-diagnose, as a range of food chemicals could be causing the problem. See a dietitian who can work out the cause with an elimination diet.

If you're trying to avoid food colours, read all labels closely – colours can be hidden where you least expect them (see "Natural and hidden dangers" box on the opposite page).

Follow a healthy diet full of fresh, unprocessed food and you're less likely to load up on food additives of any kind.

Meanwhile, the European parliament ruled last year that all foods that contain the colours must carry the warning: "May have an adverse effect on activity and attention in children."

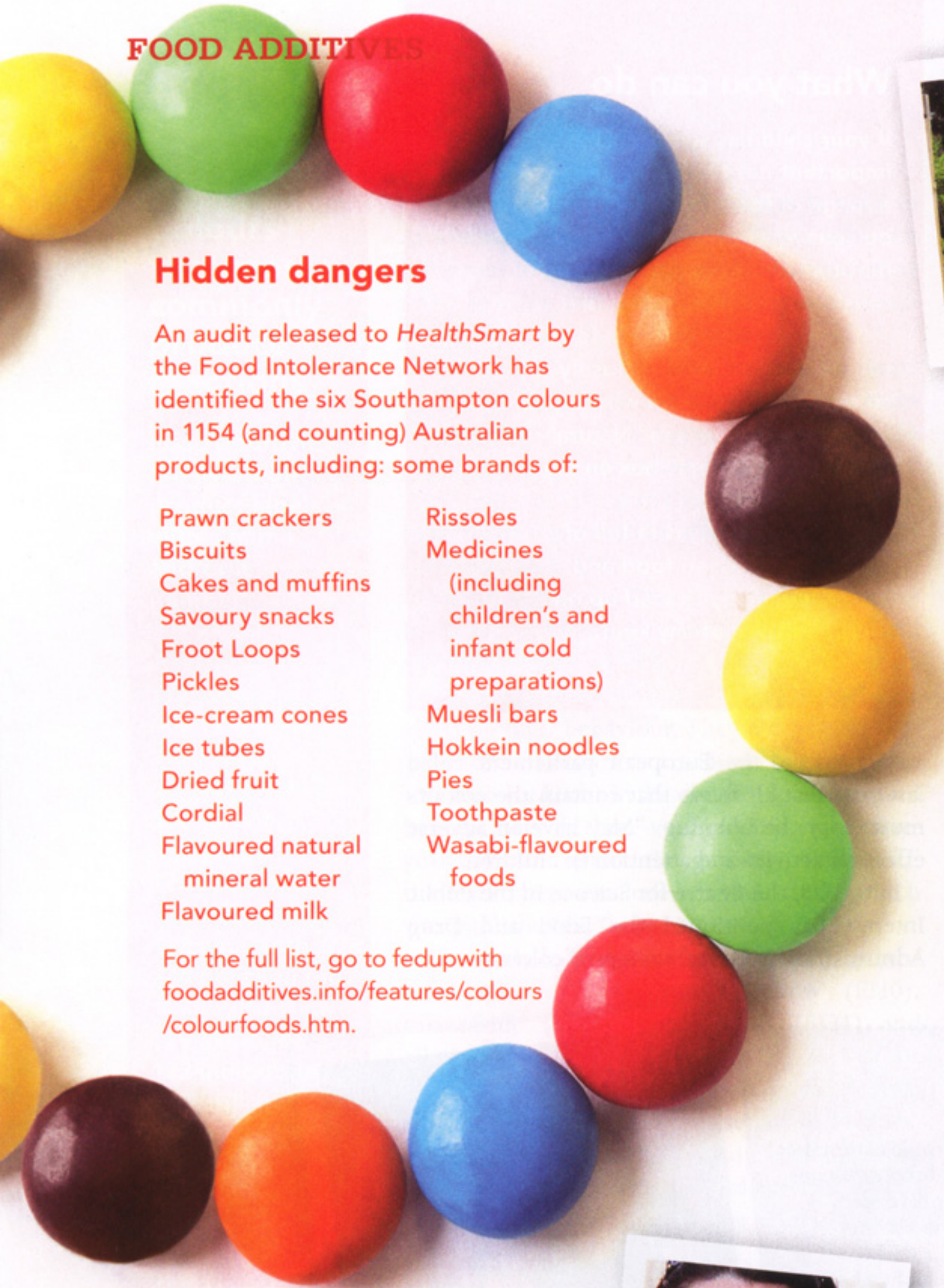
In the US, the Centre for Science in the Public Interest has petitioned the Food and Drug Administration to ban a range of colours.

Lindy Edwards
Policy analyst, Canberra

"MY HUSBAND Tim and younger son Brady are chronic asthmatics – they just manage with puffers. After we cut out food additives, all of a sudden they found they didn't need their preventers any more. When we break the diet, that's when the asthma comes back.

"Brady usually starts to wheeze and cough four to five hours after eating food colours. My husband starts to get itchy all over his body; he feels like his skin's bubbling.

"You have to be well read and treat almost every trip to the supermarket like a researcher. Look at the back of packets, look at the numbers and be aware of which food colourings are the problem ones. There are natural alternatives that manufacturers could use."



Hidden dangers

An audit released to *HealthSmart* by the Food Intolerance Network has identified the six Southampton colours in 1154 (and counting) Australian products, including: some brands of:

- Prawn crackers
- Biscuits
- Cakes and muffins
- Savoury snacks
- Froot Loops
- Pickles
- Ice-cream cones
- Ice tubes
- Dried fruit
- Cordial
- Flavoured natural mineral water
- Flavoured milk
- Rissoles
- Medicines (including children's and infant cold preparations)
- Muesli bars
- Hokkein noodles
- Pies
- Toothpaste
- Wasabi-flavoured foods

For the full list, go to fedupwith foodadditives.info/features/colours/colourfoods.htm.

Trudy Miller
Teacher, Yerrinbool, NSW

"MY FIVE-YEAR-OLD SON CONNOR tends to get overexcited when he eats food colours. He's very jumpy. He becomes aggressive, he's defiant, he's rude. It's almost like he's on a drug – he's flying high. When the effect wears off, he hits the ground. There is no control over it. Yellow and red are the worst. It happens within 20 minutes to half an hour.

"Within two weeks of eliminating them, we noticed a remarkable difference – he was a lot easier to reason with, you could settle him down. I was quite surprised to find, once I looked closely at the packaging, how many things did have colours.

"As a parent and teacher, I'd be stoked if the colours were banned. Education is also key. You can read labels, but parents aren't aware of what the numbers mean. I wonder how much better a place school would be if parents were more aware."

Lucinda Benson
Mother of four, Brisbane

"WE HAVEN'T had food with colourings in the house for four years. The whole family cut out additives to support our eldest, who has autism. Now, he's 95% normal functioning, a teenager who you would never know was autism spectrum.

"At weekends my husband and I used to eat whatever we wanted if we weren't with the kids. I wouldn't feel terrific, but I thought it was from eating food I wasn't used to. One day I thought, *I haven't had Fanta in ages*. Within half an hour I got the worst screaming headache and it lasted two days. The only way to prove it was to drin Fanta again, so I tried it a week later and exactly the same thing happened.

"Now I know I can tolerate some red, I've never tried blue, and I can't have any yellows. I'm ADHD, and with food colourings I just tend to feel a bit agitated and my concentration goes to pot. I work from home 50 or 60 hours a week and I can't afford not to be able to think clearly, or to have a headache that lasts two days."

SHOULD FOOD COLOURINGS BE BANNED HERE?

HealthSmart examines the main evidence, and arguments for and against a total ban.

NO BAN

✗ Food Standards Australia New Zealand (FSANZ) works with the World Health Organisation to control additives based on the available science in the context of our local diet. It has ensured we are consuming additives at levels well below the safety limit: that means that even if you ate large quantities of foods containing colourings every day for your whole life, they would not poison you.

✗ FSANZ has found our children eat a lower level of food colourings than that quoted in the UK's Southampton study. "Those colourings are not broadly in the food supply here and aren't in the everyday nutritious foods that children should be eating," says FSANZ spokesperson Lydia Buchtmann.

✗ Several local experts have highlighted weaknesses in the Southampton study. They say that while it's interesting research, at this stage there's not enough evidence to prove that

artificial colours need banning, says Buchtmann.

✗ Dr Rob Loblay, director of the Allergy Unit at the Royal Prince Alfred Hospital, notes there's no data to suggest food colourings have a long-term adverse affect on children. "There is no current evidence these things cause brain damage," he says. "Whatever effects they are having on susceptible children are transient."

✗ The Australia New Zealand Food Standards Code already requires by law that all additives, including artificial and natural food colourings, must be listed on a product's label.

✗ People are allergic or intolerant to all sorts of things. They can react to natural chemicals found in foods, preservatives and flavours, and different combinations of chemicals. Everyone is affected differently.

✗ The effects of food colourings are dose-dependent – if your child reacts to food colours, then give them less of those foods.

✗ Consumers would baulk at food without colourings. Can you imagine drinking a clear but orange-tasting fizzy drink?

YES, LET'S BAN

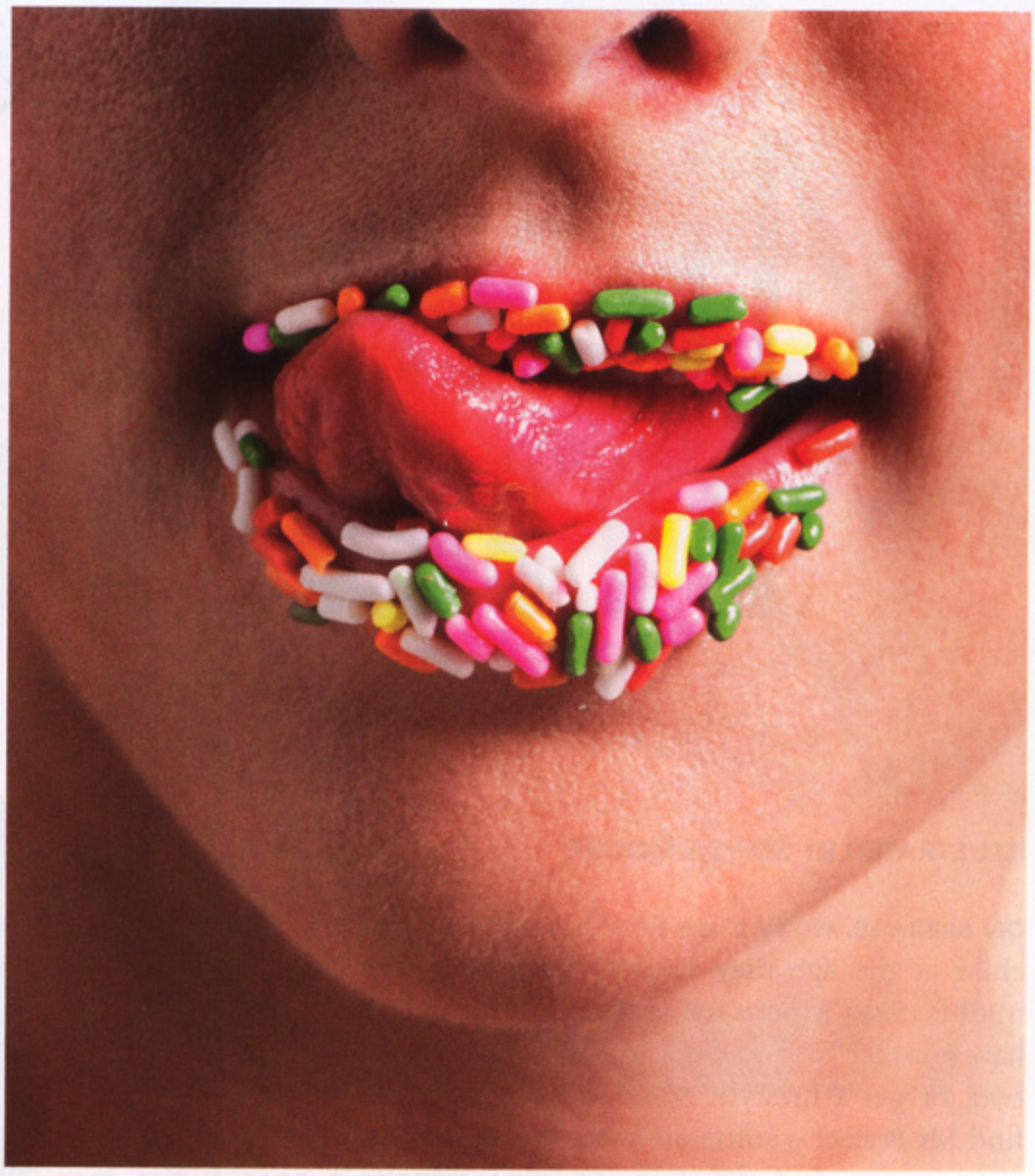
✓ The Southampton study proves that children in the general population – not just children with known allergies and intolerances – are affected by food colourings.

✓ You wouldn't ban peanuts just because some children are allergic to them: they are healthy and beneficial for most people. However, artificial colours have no nutritional benefits at all. They are used for cosmetic purposes only, and no-one would suffer if they were banned.

✓ Children – especially young ones – can still be affected by food colourings even if they consume far less than the current acceptable daily limit.

✓ Anecdotal evidence from parents is strong enough to warrant tighter regulation of food colourings, says NSW Greens MP John Kaye. "Everywhere I go, parents talk to me about kids reacting," he says. "FSANZ says it's up to parents to take care to minimise their children's consumption. But that means memorising six three-digit numbers. That's not realistic."

✓ Artificial colours can be replaced by natural food colours. Manufacturers argue that it might be more expensive, "but what's more important, bright colours or bright kids?" asks Sue Dengate. ✚



Artificial colours have no nutritional benefits at all. They are used for cosmetic purposes only

The great Smartie showdown

NESTLÉ AUSTRALIA announced in December 2008 it was removing artificial food colourings from the casings of Smarties – but to do so wasn't an easy feat.

In the UK in 2005, the company saw a consumer backlash when it took out blue Smarties because a vibrant natural blue colour couldn't be found, says Andrew McIver, general manager of confectionery and snacks for Nestlé Australia. The problem with replacing artificial colours is retaining the quality of colour and flavour, he says. "You get a really mottled colour. For a long time we couldn't technically achieve it in Australia."

There's also the problem of cost: some natural alternative can be 40 times more expensive.

The Australian Food and Grocery Council also points out that natural colourings are not without risks: some people are sensitive or allergic to natural colourings such as cochineal.

However, the industry realises there's increased consumer perception that natural colourings are safer, so expect to see a higher number of manufacturers moving towards more natural, less synthetic food colourings as technology improves.