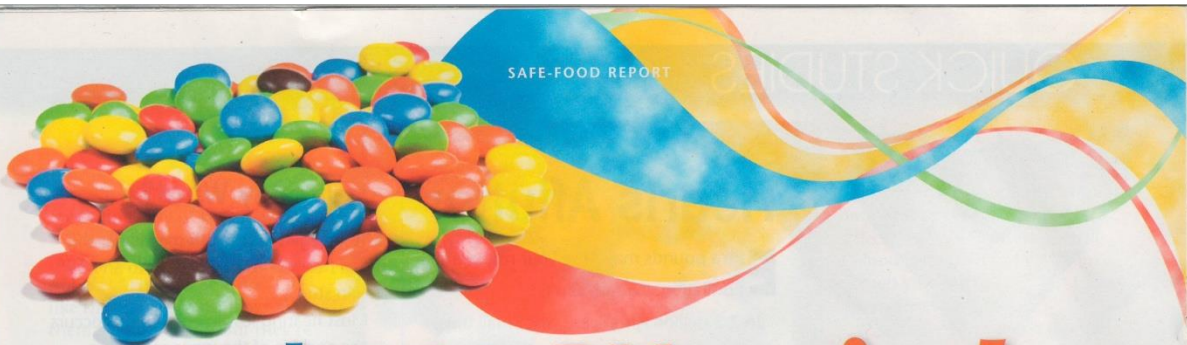




Color Us Worried

WHY SYNTHETIC FOOD DYES SHOULD BE BANNED

BY MICHAEL F. JACOBSON & SARAH KOBYLEWSKI

What do Nabisco Sun-Dried Tomato and Basil Wheat Thins, Vlasic Kosher Dill Spears, and Orbit Bubblemint White Gum have in common?

They're three of the thousands of foods that are dyed with one or more synthetic food colorings to make them look more appetizing.

That bright "cheesy" orange color of Kraft Macaroni & Cheese? It's courtesy of Yellow 5 and Yellow 6. (In Europe and Australia, Kraft mac and cheese relies on natural colors like annatto. So does the pricier Organic Macaroni & Cheese that Kraft sells in the United States under its Back to Nature brand.)

And while General Mills boasts that its Nature Valley Sweet & Salty Peanut Granola Bars are "rich with all-natural ingredients," the bars are colored with Blue 1, Red 40, Yellow 5, and Yellow 6. Guess "natural" means something different in Nature Valley.

The Color of Safety

Synthetic food colorings are manufactured from petroleum. Food companies like them because they're cheaper, more stable, and brighter than natural colorings like paprika, beet or blueberry juice concentrate, and beta-carotene.

Considering the proliferation of junk candies, breakfast cereals, snack foods, and other processed concoctions, it's no surprise that per capita use of synthetic dyes has increased five-fold over the past 50 years.

But it may surprise consumers to learn that there are lingering questions about the safety of most of the nine synthetic dyes that can be used in food (Blue 1, Blue 2, Citrus Red 2, Green 3, Orange B, Red 3, Red 40, Yellow 5, and Yellow 6).

Here are three examples.

● **Red 3.** Twenty years ago, the Food and Drug Administration banned Red 3 from cosmetics and topically applied drugs because the dye caused cancer of the thyroid gland in animals. But the FDA

never got around to prohibiting most uses in food or in drugs that are swallowed.

In 1984, the then-acting FDA commissioner said that Red 3 was "of greatest public health concern" and "has clearly been shown to induce cancer." Since then, the food industry has poured five million pounds of Red 3 into the food supply.

Among the foods made with Red 3: Badia Imitation Bacon Bits, Edy's Take the Cake Ice Cream, Orbit Bubblemint White Gum, Sara Lee Signature Selections Andes Chocolate Mint Creme Pie, Wal-Mart Rainbow Mix Dessert Sprinkles, and Jolly Rancher Popsicles.

● **Red 40.** In one mouse study, the most widely used synthetic coloring seemed to speed up the appearance of immune system tumors. In a second study, it didn't. The inconsistency—and therefore the safety of Red 40—was never satisfactorily resolved.

Among the foods made with Red 40: Gatorade Fruit Punch, Pillsbury Grands! Flaky Layers Honey Butter Biscuits, Betty Crocker SuperMoist Carrot Cake, and Betty Crocker Bac-Os Bacon Flavored Bits.

● **Yellow 5.** The second most commonly used dye, which is also known as tartrazine, causes sometimes-severe hypersensitivity reactions, mainly hives, in some people. (Red 40 and Yellow 6 have also caused allergic-like reactions.)

Thirty years ago, the FDA estimated that about 100,000 U.S. consumers were sensitive to tartrazine and required the

In a pickle.

Cucumbers, water, vinegar, salt, calcium chloride, polysorbate 80, natural flavors, and Yellow 5. Mmmm.



dye to be listed (by name) on food labels.

Hives isn't the only concern with Yellow 5. In six of 11 test-tube or animal experiments, the dye damaged DNA. That's often a sign that a compound is a carcinogen. But Yellow 5 didn't cause cancer in the only good rat study.

Still, the FDA typically requires tests in at least two rodent species, and a study in mice didn't meet the agency's research guidelines.

Another reason to worry about Yellow 5: It can be contaminated with the human carcinogen benzidine. So can Yellow 6.

The bottom line: Until more studies are done, Yellow 5 shouldn't be allowed in food.

Among the foods made with Yellow 5: Vlasic Pickles, Tropicana Lemonade, Betty Crocker Au Gratin Potatoes, Yoplait Key Lime Pie Yogurt, Pillsbury Toaster Strudels, and Simply Chex Cheddar Snacks.

ADHD in Children

For 40 years, parents and pediatricians have complained that foods made with synthetic colors worsen the behavior of some children. And for 40 years, the food industry and the FDA have dismissed the claims as unproven.

But when a 2004 meta-analysis pooled the results of 15 studies, it found a "modest" worsening of behavior in children diagnosed with attention deficit hyperactivity disorder (ADHD) who were given foods with synthetic dyes.¹

Since then, two large studies commissioned by the British government showed that dyes can also affect children who haven't been diagnosed with a behavioral disorder.

In one, University of Southampton researchers gave beverages with and without six dyes to 137 three-

year-olds and 130 eight- and nine-year-olds who had been recruited from local nurseries and schools. The amount of dye in the drinks was equivalent to the amount in four to eight ounces of candy.

The children's inattention, impulsivity, and overactivity—as measured by a composite score from teachers, parents, the researchers, and a computerized test—increased slightly but significantly after they drank the colors-laced drink compared to another occasion when they drank a similar-looking but colors-free placebo.² The teachers, parents, and researchers didn't know which drink the children had consumed when they did their rating.

In response to that and earlier studies, the British government urged the food and restaurant industries to remove the six dyes by December 31, 2009. (Four of the six—Red 3, Red 40, Yellow 5, and Yellow 6—can be used in food in the United States.)

What's more, the European Parliament passed a law requiring a warning notice ("may have an adverse effect on activity and attention in children") on foods that contain at least one of the six dyes.

"Studies have shown that certain food colorings and preservatives may cause or worsen hyperactive behavior in some children," notes the American Academy of Family Physicians. "Talk to your doctor about whether you need to make any changes to your child's diet."

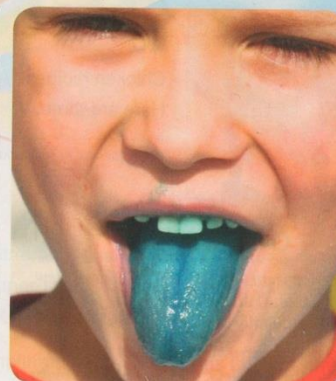
Tests Don't Tell All

While all food colors must be approved by the FDA, synthetic colorings also have to pass tests showing that they don't have unsafe levels of potentially cancer-causing impurities. Each batch has to be analyzed and certified by the FDA

before it can be used. Natural colorings are exempt.

But the FDA tests don't necessarily catch everything.

For example, 15 years ago, FDA and Canadian



Feeling blue. Synthetic colorings lure kids to junky cereals, candies, and other foods.

government scientists discovered that most of the carcinogen benzidine that can contaminate Yellow 5 and Yellow 6 is bound to molecules in the dyes. So routine FDA tests, which look for only "free" benzidine, fail to detect it. And the dyes are sometimes contaminated with 100 to 1,000 times more bound than free benzidine.

The FDA says that it doesn't have the resources to routinely conduct more-thorough tests.

The Bottom Line

Synthetic dyes have caused allergic-type reactions in some people and hyperactive behavior in some children. They've caused tumors or mutations in some animal studies and may contain cancer-causing impurities. Some simply haven't been adequately tested. What's more, they have no nutritional benefit and are often used in junky kids foods or other foods of little value.

Our advice: Consumers should avoid synthetic dyes, the food industry should switch to safe, natural colorings, and the FDA should ban the dyes.

¹ *J. Dev. Behav. Pediatr.* 25: 423, 2004.

² *Lancet* 370: 1560, 2007.

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For more information, visit cspi.info/fooddyes. You can read our new report, tell us about a hyperactivity reaction to dyes, and check our list of more than 1,300 dyed foods.

