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How Food Dye Impacts the Immune Response

Everyone has seen the candies, cookies, and cakes with bright colors. The colors so bright and vivid as to catch your attention from all the way across the grocery store. The colors that change with the seasons. Colors so vibrant as to drown out the more natural colors of fruits, vegetables, and unprocessed foods.

These goodies are this brightly colored by the food dye mixed in. This food dye changes only the color of the food—not the taste or texture. It's simply a matter of how the food looks. In [this article](#), Doc talks about how an orange soda ordered in Europe looks more like a lemonade. It tastes like the same orange soda, though. The orange color comes from the food dye—but not the taste.

Food dye isn't only in cookies, cakes, candies, and Easter eggs. In fact, the [NIH](#)¹ says:

Artificial dyes derived from petroleum are found in thousands of foods. In particular breakfast cereals, candy, snacks, beverages, vitamins, and other products aimed at children are colored with dyes. Even some fresh oranges are dipped in dye to brighten them and provide uniform color, says Michael Jacobson, executive director at CSPI. ... Food dye consumption per person has increased fivefold in the United States since 1955, with three dyes—Red 40, Yellow 5, and Yellow 6—accounting for 90% of the dyes used in foods.

The Body Needs What it's Made of; Not Invaders

When you're building a house, you are going to order supplies that you want to build the house with. If you're building a brick home, you're not going to buy wood siding. Not only would the siding be unnecessary, but it would be a stress on your budget and the work area, because you'd need somewhere to put it. This seems like common sense when we talk about building a home, car, or anything else.

Eating well has the same general thought behind it. You bring into the work area only what the end result—your body—is going to be built of. If something your body isn't made up of enters the work area, the body will attack it so it doesn't cause problems. This is what makes up the immune response. Finding something to do with the unneeded materials taxes the body's available energy, using more than it normally would, and decreasing the energy it's able to put toward other areas.

Food Dyes are Toxins

[ResearchGate](#)² says the following about how food coloring interacts with the immune system:

The molecules of synthetic colorants are small, and the immune system finds it difficult to defend the body against them. They can also bond to food or body proteins and, thus, are able to act in

stealth mode to circumvent and disrupt the immune system. The consumption of synthetic food colors, and their ability to bind with body proteins, can have significant immunological consequences. This consumption can activate the inflammatory cascade, can result in the induction of intestinal permeability to large antigenic molecules, and could lead to cross-reactivities, autoimmunities, and even neurobehavioral disorders.

Food dyes can disrupt the immune system and have serious consequences. Your immune system is needed in order to fight off viruses, bacteria, and other foreigners that can cause your body harm, as described above. If your immune system isn't functioning properly, you're at greater risk of something truly dangerous causing problems.

Food coloring is made of petroleum—something the body isn't. If the immune response doesn't catch it, that can cause innumerable problems in the body.

Food Dyes Wreak Havoc on the Body

Because food dyes can get past the immune response, they impact the body without threat. Let's break down some of the effects food dyes can have on the body when they're able to get past the immune system. Keep in mind this quote from [The Washington Post](#)³ that:

At the same time [2004], the British government funded two studies, each involving almost 300 children. Their results were even more startling: **Artificial food dyes (in combination with a common preservative) could make even children with no known behavioral problems hyperactive and inattentive.** [Emphasis ours]

Hyperactivity

The [NIH](#)⁴ says:

since the use of artificial food coloring has become widespread, many allergic and other immune reactive disorders have increasingly been reported. During the past 50 y[ears], the amount of synthetic dye used in foods has increased by 500%. Simultaneously, an alarming rise has occurred in behavioral problems in children, such as aggression, attention deficit disorder (ADD), and attention-deficit/hyperactivity disorder (ADHD). The ingestion of food delivers the greatest foreign antigenic load that challenges the immune system. Artificial colors can also be absorbed via the skin through cosmetic and pharmaceutical products.

The [NIH](#)⁵, in another place, also reports on the following:

The effect of artificial food colors (AFCs) on child behavior has been studied for more than 35 years, with accumulating evidence from imperfect studies. This article summarizes the history of this controversial topic and testimony to the 2011 Food and Drug Administration Food Advisory Committee convened to evaluate the current status of evidence regarding attention-deficit/hyperactivity disorder (ADHD). ... Recent data suggest a small but significant deleterious effect of AFCs on children's behavior that is not confined to those with diagnosable ADHD. AFCs

appear to be more of a public health problem than an ADHD problem. AFCs are not a major cause of ADHD per se, but seem to affect children regardless of whether or not they have ADHD, and they may have an aggregated effect on classroom climate if most children in the class suffer a small behavioral decrement with additive or synergistic effects.

One [study](#)⁶ shows that 73% of children (19 of 26) children with ADHD showed a decrease in symptoms when the dyes and additives in their diet were taken away.

Irritability

The [NIH](#)⁷ shows that, in a study of 800 kids:

Behavioral changes in irritability, restlessness, and sleep disturbance are associated with the ingestion of tartrazine in some children. A dose response effect was observed. ... Significant reactions were observed at all six dose levels. A dose response effect was obtained. With a dose increase greater than 10 mg, the duration of effect was prolonged.

Preoccupied Immune System

If the things laid out above are what happens when food coloring sneaks through the immune system, what happens if it doesn't?

If the immune response catches the toxins and fights them off, as it does with other toxins and inflammatory foods, it occupies the immune response. When the immune response is constantly fired and being used, it can easily get stressed and fatigued. When this happens, the immune response starts to bypass some of the checkpoints, resulting in the body tissue that holds the invaders being attacked along with the invaders. This happening consistently is what causes autoimmune disorders.

In seasons where a lot of food dye or other toxins is eaten or absorbed into the body, it becomes much easier for the immune response to get fatigued.

Alternative Solutions

For the seasons when fun, brightly colored foods and treats are the norm—Halloween candy, Christmas treats, birthday treats, and Easter eggs, as a few examples—you can still join in the fun. It's just a matter of how the dyes are made. When the dyes are made from more natural ingredients, the colors won't be as bright, but it also won't cause so many problems. Check out our articles on [naturally dyeing easter eggs](#), [trick-free treats for halloween](#), and [stocking stuffers without the toxins](#). [Health drinks](#) and [sports drinks](#) are other areas to look out for when it comes to hidden artificial dyes.

[Growmuse](#)⁸ offers a list of alternative, plant-based ways to dye foods for your favorite colored treats. Of course, if you're dyeing with natural ingredients, you'll also get a bit of the flavor of those ingredients, and a little can go a long way. It's suggested you start with half to a full teaspoon and adjust from there.

Orange–Pumpkin, Carrot Juice, sweet potatoes, paprika

Yellow–Turmeric powder, saffron flowers, butternut squash

Green–Spinach or Kale Juice, matcha powder

Blue–Blueberries

Purple–Purple Potatoes, Blackberries

Brown–Coffee, tea, cocoa powder

Pink–Raspberries, strawberries

Red–Raspberries, Beet root, pomegranate juice, cranberry juice, tomatoes, cherries.

It can be fun to see all the brightly colored sweets and treats, and the colors can be eye-catching, but food dyes are a lot like frogs, in this way–the brightly colored ones are best to stay away from.

To get your immune system tested, and find out more ways to support it, [contact a Wellness Way clinic, today!](#)

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