

Dyes and additives harmful effects



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DO FOOD ADDITIVES/ DYES CAUSE HARM TO CONSUMERS?

The objective of this paper is to find out if dyes and additives such as red 40, yellow 5, yellow 6 and blue 2, which are added to foods, drugs, and cosmetics, are harmful to the consumers? Do we really believe these dyes or additives can cause cancer or other more severe conditions? Dyes were used in ancient times and then how artificial colors were first discovered. Next, would be about the consequences of consuming foods with these dyes. Then comes the question about what countries have banned artificial coloring and why doesn't the US government do the same? Afterwards, how can the intake of these harmful dyes be lowered? This research will aim to show what will happen when consuming these foods; and a guide on how to consume foods without harmful dyes properly succeeds and develops a better and healthier life.

HISTORY OF DYES

In ancient times naturally colored additives were produced using vegetable, mineral, and other natural substances were used to dye foods, drugs, and make-up. Some examples of natural sources such as are paprika and turmeric are used as food dyes. Other sources include lead oxides and iron which both are used to make shades of red. Iron is also used to make colors like dark grey, bright yellow, and deep purple. Another natural source is saffron that ranges color from yellow to orange and lastly and even copper sulfate can be used to make blue colors.

Sir Henry William Perkin was attempting to form an anti-malarial drug in 1856; instead he discovered the first synthetic color called mauve. From his accidental discovery a new color industry was born with an uncountable amount of new colors such as magenta, fuchsia, violet and so many others have followed. These new artificial dyes were quickly taken on by food industries as they were inexpensive and more of a stable way for coloring foods. Dyes were first created from coal and tar which gave it its first name as Coal-tar colors. (U. S. Food, 2003).

There are three categories for Color additives the first is straight colors. Color additives that has not been mixed or chemically reacted with any other ingredients are called straight colors. An example of a straight color is FD&C Blue No1 or Blue 1. The second category is chemicals reacting to straight colors with substrata which are called lakes; Blue 1 Lake is one example. Lastly, the third category is mixtures. Which is a color additive created without a chemical reaction by combining multiple color additive or non-colored diluents. Food inks used to mark confectionery are examples of a mixture. (U. S. Food, 2003).

PURPOSE OF COLORING

Anything that is a dye, coloring, or other material that can transform the color of a food, drug, cosmetics, clothing, or to the human body is considered a color additive. Like now, colors were used to serve as a visual sign for quality, to make it more eye catching to the buyers and so that it meets consumer expectations of the product. These colors allow us to identify products like sweets; serving as a kind of code (U. S. Food, 2003).

People associate certain colors with certain flavors, and the color of food can affect the observed flavor in everything from candy to wine. Occasionally the aim is to mimic a color that is alleged by the buyer as natural, for example adding the red color to glacé cherries which would have been beige. Or sometimes it is used for effect, like making ketchup green.

Dyes are used in foods for countless reasons, to replacing color loss due to exposure to light, air, temperature extremes, storage conditions and moisture. Correcting natural discrepancies in color and enhancing naturally occurring colors. It also provides color to colorless and fun foods and makes food more attractive and appetizing, and informative. In addition, products like fruit flavored candy or medicine dosages can be recognized by the consumers on sight.

When foods are treated, essential nutrients and fibers are not only removed, but also the textures and natural variation and flavors are also lost. What's left after processing is a bland, boring pseudo-food that would not be appealing to anyone (U. S. Food, 2013). Therefore, the nutrients, flavor, color and even the texture that were lost during the process in order to make them edible are add back in the product by manufacturers. That is why they turn out to be overburdened with food additives.

Most frequently, additives are incorporated to slow spoilage, stop fats and oils from going rotten, inhibit fruit from turning brown, fortify or enrich the food with man-made vitamins and minerals to supplant the natural ones that were lost during processing, and improve taste, appearance and texture.

CONSEQUENCES OF CONSUMING FOODS WITH DYES

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The Washington Post has stated that beyond the cancer risks and behavioral problems, the greatest hazard that dyes pose for children may also be the most obvious. They distract kids taking them away from nutritious foods and leading them towards brightly colored processed products that are high in calories but low in nutrients, such as fruit-flavored drinks and snack foods. Those types of foods are one of the major harms that are leading to a widespread of obesity in America. (Dark side, 2011).

The most popular dyes used in the United States are yellow 5, Red 40, yellow 6 and blue 2. Study has shown that these colorful additives can cause behavioral problems as well as cancer, birth defects and other health problems in laboratory animals. Allergy-like hypersensitivity reactions in children are suspected to be caused by yellow 6 and Red 40. The Center for Science in the Public Interest reports that some dyes are also contaminated with known carcinogens.

Below is a list of the food dyes most commonly used today and what they can cause to whoever consumes products that contain them. It is to be kept in mind that most studies were found inconclusive by the FDA. CSPI also lists that most of the food dyes contain Benzedrine and 4-Aminobiphenyl.

Benzedrine is a man-made chemical that causes skin allergies, cancer of the urinary bladder. Some data acclaims that other organs, such as the stomach, kidney, brain, mouth, esophagus, liver, gallbladder, bile duct, and pancreas, may also be affected. Most of these discoveries were only tested on lab animals like mice dogs and rats.

SUMMARY OF

STUDIES ON
FOOD DYES

Food dye	WHERE IT IS FOUND?	Allergic reactions	Carcinogenic contaminants	Tests for cancer*	Other*
Mouse	Rat				
Blue 1 (Brilliant Blue)	Baked goods, beverages, dessert powders, candies, cereal, drugs, and other products.	Yes		No <i>in utero</i> studies. One abstract (study not published) Reported kidney tumors.	No tumors in the only good study. inhibition of nerve-cell development. Radioactivity in the urine
Blue 2 (Indigo Carmine)	Color beverages, candies, pet food, & other food and drugs.			Both studies were too brief and did Not include <i>in utero</i>	Dosage was likely too low; possible Cell neoplasms in the urinary bladder

			exposure.	Brain and bladder tumors.
				Increased fatty metamorphosis, and significant
Citrus Red 2 (used only on peels of some oranges at 2 ppm)	Is permitted only for coloring the skins of oranges not used for processing		Bladder and other tumors	Bladder weight gain in females, hyperplasia, and thickening of urinary bladder wall causing papilloma
Green 3 (Fast Green)	Drugs, skin care products,		The only study did not include <i>in utero</i>	Possible Tests on dogs proved raise in pup

cosmetic products except in eye area, candies, beverages, ice cream, sorbet; ingested drugs, lipsticks, and externally applied cosmetics.

exposure.

r and other tumors

mortality, testes tumors, liver neoplastic nodules, urinary neoplasms, and studies found that most males were affected.

Orange B

(in 1978 FDA proposed, but never finalized, a ban)

Sausage casings but has not been used for many years.

The only two studies did not include *in utero* exposure.

Toxic

Red 3 (Erythrosine)

Sausage casings, oral medication,

The only study Thyroid Dye takes did not include about 3 *in utero* tumors months to

(FDA
 hasbanne
 d it from maraschino
 cosmetics cherries,
 , baked goods,
 externally candies,
 applied some
 drugs, cosmetics.
 and
 lakes)

leave the
 body
 increased
 thyroid
 follicular cell
 adenomas in
 males,
 weight loss
 in adults and
 children,
 animal
 carcinogen.

Red 40 (Allura Red)	Beverages, bakery goods, dessert powders, candies, cereals, foods, drugs, and cosmetics.	Yes	<i>p</i> -Cresidine	Possible reticuloendoth elial tumors of the immune system	No tumors in the only good study	Hypersensitiv ity in all patients tested, passes in utero and Proves a significant decrease in body weight in females, was present in dogs
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						system years later. And triggers hyperactivity in children.
Yellow 5 (Tartrazine)	Pet foods, in numerous bakery goods, beverages, dessert powders, candies, cereals, gelatin desserts, and many other foods, as well as pharmaceuticals, and cosmetics.	Yes	Benzidine, 4-amino-biphenyl levels found above FDA regulation	Only mouse study was too brief, used too few mice, and Began with 6-weekold mice.	No tumors in the only good study	6 of 11 studies showed genotoxicity. Hyperactivity in children. Induces chromosomal aberrations. It may be contaminated with several cancer-causing chemicals.
Yellow 6	Color bakery goods,	Yes	Benzidine, 4-amino-	Neither study included <i>in</i>	Possible	Hyperactivity in children.

				asthma
				angioedema
				of lips, eyes,
				or face;
				reddening of
				the eyes;
	cereals,			sweating;
	beverages,			adrena increased
	dessert			l and tear
	powders,			testicul secretion;
(Sunset	candies,	biphenyl	<i>utero</i>	ar nasal
Yellow)	gelatin		exposure.	tumors congestion;
	desserts,			sneezing;
	sausage,			rhinitis
	cosmetics			(runny nose);
	and drugs.			hoarseness;
				wheezing;
				and a variety
				of subjective
				symptoms.

* Tests should be done on both sexes of two rodent species, use sufficient numbers of animals, include in utero exposure, last at least two years after birth, and use maximally tolerated dosages. Ideally, tests would be conducted by independent labs, but most tests on dyes were conducted by industry. (Dye, Food, Allergic Reactions, 2010, page 2)

** In addition, numerous studies have found that mixtures of dyes cause hyperactivity and other behavioral impairments in children. (Dye, Food, Allergic Reactions, 2010, page 2)

What Countries Have Banned Artificial Coloring and Why Doesn't the US Government do the same?

A direct advisory to parents, warning them to limit their children's consumption of additives if they notice an effect on behavior was issued the British Food Standards Agency (FSA) (Dark Side, 2014). Even most foods in the EU that contain artificial food dyes were labeled to warn that the product can have a bad effect on activity and attention in children to parents (7 Worst Ingredients, 2013). This caused many food producers to willingly take out artificial dyes from their products and replace them with natural substances to color their foods.

In Other countries food additives that are banned are perfectly legal and ok to use in US foods. Various food dyes, BHA, BHT, rBGH, rBST, brominated vegetable oil, potassium bromate (aka brominated flour), Azodicarbonamide, the fat substitute Olestra, and arsenic are just some of the banned ingredients (7 Worst Ingredients, 2013). Because these food color additives are banned in those countries, companies like Kraft use natural dyes instead, such as annatto, beet-root, and paprika extract (The Dark Side, 2011).

In the United States, the Food and Drug Administration (FDA) continues to allow these toxic ingredients in numerous popular foods, including those advertised specifically for children. By looking at the ingredients on a package of a Nutri-Grain strawberry cereal bar in the United States, you will

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discover that it contains Yellow 6, Blue 1, and Red 40. Although, in the United Kingdom the exact bar contains natural colorings beetroot red, annatto and paprika extract. This shows us that the United Kingdom government cares more about what their people consume more than the United States government does.

How Do These Dyes Cause Cancer?

Our bodies cannot process certain chemicals. Artificial colors are derived from petroleum and are full of Carcinogenicity. Dyes are made from the same petroleum that is used to make gasoline, diesel fuel, asphalt, and tar; and it is turning up in an insane amount of packaged foods.

Carcinogens are any material, radionuclide, or radioactivity which, is an agent that is directly involved with causing cancer. They are involved with causing cancer because it has the ability to damage the genome or disrupt the cellular metabolic process.

How to start limiting your consumption of foods that contain dyes

When reading product packs out for artificial colors. It is a nice way of saying that there are too many colors added to fit on the label. On an ingredients label the most frightening thing to see are the words artificial flavor or artificial color because there's no way to know what it actually means or contains. Artificial flavor can stand for one unnatural additive is included, or it could be a blend of many additives added. Specifically, artificial flavoring in strawberries can contain around 50 chemical ingredients. In popcorn there's an artificial flavoring known diacetyl which, is used as a butter flavoring.

It is important that you enjoy genuine flavors, instead of fat, sugar, and salt. Which, are added to mask the metallic taste of chemical additives? However, you should search for foods with real ingredients by reading the labels carefully. While devoting time solely to enjoying the pleasures of eating. Plus you can also cook with meals and bake sweets with smaller amounts of these artificial dyes by using natural alternatives like spices and herbs to give color and taste to your foods.

By doing so, you will slowly lose your desire for excessive sweet and salty foods. Therefore, go for high-quality foods. When shopping, look for products that have the least quantity of processed ingredients. Lastly, indulge yourself well by not missing meals. (Weinstein, Bruce, 2010).

Conclusion

For years there have been discrepancies over whether or not certain food dyes causes various damage to the body. My opinion, there is After this I say they do, and for once may be safe if he or she starts to watch what they eat and learn how to consume little to no foods that contain anything that has a possible chance of hurting them in the long run.

While Americans continue to enjoy on cereal bars, fruit juices, candy and many other processed foods with endless amount of coloring all due to imitated food colorings. While, individuals in the United Kingdom are appreciating those same colorful snacks and more, but without the artificial color. Which in turn brings to question; is America really overseeing the public's safety or is just making the undeniable truth that has been well known since its creation?

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