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A closer look at food dyes

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As artificial food dyes gain increased attention, experts at the University of Alabama at Birmingham are bringing clarity to the debate surrounding these vibrant additives. With dyes like Red 40 and Yellow 5 coloring everything from cereals to energy drinks, concerns are mounting over potential health impacts, especially in children. UAB researchers are examining the effects of these dyes and exploring natural alternatives, shedding light on what consumers need to know about what is in their food and why it matters more than ever.

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Artificial dye consumption and health concerns

Over the past five decades, artificial food dye consumption has increased by 500 percent, with children identified as the primary consumer group. Lizzy Davis, Ph.D., director of the Dietitian Education Program in the School of Health Professions at UAB, emphasizes that the majority of artificial dye intake in the United States comes from beverages like juices, energy drinks and sports drinks.

“The top three artificial food dyes — Red 40, Yellow 5 and Yellow 6 — constitute 90 percent of all food dye usage in the U.S.,” Davis said.

Despite the concerns, she notes that studies have not found a direct causal link between food dyes and major health risks in humans under normal consumption levels.

“However, limited evidence suggests that certain dyes may affect children’s behavior, leading to symptoms like hyperactivity and inattentiveness,” Davis said.

In addition to behavioral concerns, research on certain dyes in animal studies — such as Blue 1, Blue 2 and Red 3 — indicates potential cancer risks in rats, though the implications for humans are still under investigation.

Sophia Tannatta, a UAB Dietitian Education Program student, points out that many of the approved dyes are derived from petroleum and are regularly found in common foods such as cereals, candies and beverages.

“Removing Red 40 may help with ADHD symptoms; however, only 8 percent of children with ADHD have symptoms related to Red 40,” Tannatta said.

Natural alternatives and industry limitations

Alternatives to synthetic food dyes have been used for centuries, derived from ingredients like beets, turmeric and saffron, which can offer minimal nutritional benefits.

> “We look forward to continued research in the coming years to further inform public health recommendations and improve consumer options,” Davis said.

“Natural pigments such as carotenoids and anthocyanins are already widely used, particularly in the U.S. and Europe,” Davis said.

However, artificial dyes often produce more vibrant colors than natural options, which may also alter a product’s flavor and texture and are generally more costly to produce.

Public awareness and education

With increasing awareness, especially following legislative actions taken in other states, more consumers are seeking information on the health impacts of food dyes. While formal studies on consumer knowledge are limited, public interest is evident on social media and in popular media coverage. Davis and Tannatta recommend that consumers look to the Dietary

Guidelines for Americans, which emphasize whole, minimally processed foods that typically exclude artificial dyes.

“If you are looking to avoid artificial dyes, be aware of ingredient lists,” Davis said. “Common dyes may appear under names like Red 40 or Yellow 6, or even less obvious names like Tartrazine.”

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