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Energy Drink Adverse Effects: What Is Being Done to Protect Public Health?

Advertising, low price, and product availability are driving the growth of the multibillion-dollar energy drink industry. With more than 300 varieties on the market, consumers of all ages are turning to these novel soft-drink alternatives to self-manage fatigue. A typical energy beverage contains caffeine, sugar, and other various performance enhancing ingredients (e.g., B vitamins, taurine, guarana, and other bioactive herbal components) which enhance stimulant effect.

Reports of serious injuries and adverse health effects, including death, have been linked to energy beverage consumption, capturing the attention of the U.S. Food & Drug Administration (USFDA), policy makers, and researchers who are trying to better understand ingredient interactions. Recently, more than 5,000 cases of energy drink-related toxicity (e.g., seizures, arrhythmias, death) involving alcoholic and nonalcoholic exposure were reported to U.S. Poison Control Centers (National Poison Data System, 2015). Of these, more than 40% involved children—yet the majority of energy drink companies continue to market their products to youth. Deaths are sometimes blamed on manufacturers, excess stimulant effects, and poor product labeling; however, it can be challenging to determine the exact cause in each case. Recent headlines reporting the energy drink–related death of a South Carolina teen have prompted the question, "Is enough being done to protect consumers?"

The USFDA regulates dietary supplements and conventional foods under the Federal Food, Drug, and Cosmetic Act, but the requirements differ for each. Energy drinks may be labeled as dietary supplements, or as nutrition products; the choice is up to the manufacturer. Products bearing a Dietary Supplement label fall under regulatory guidelines of the 1994 Dietary Supplement Health & Education Act. Foods and some beverages bearing the Nutrition Facts label fall under regulatory guidelines of the Food, Drug, and Cosmetic Act, which allows consumers to purchase energy beverages with food stamps. The primary active ingredient in energy beverages is caffeine, which is widely used around the world, and moderate consumption is considered safe. Although it is not considered a nutrient, caffeine must be listed as an ingredient on the product label if it is added to a food or supplement. Estimating the caffeine content can be difficult, because the amount of caffeine in a "proprietary blend" does not need to

be listed on the label. In addition, some herbal ingredients (e.g., guarana, yerba mate, kola nut) commonly added to energy beverages may also produce stimulant effects or may contain caffeine. Readers may learn more about dietary supplement basics by visiting the USFDA website at https://www.fda.gov/AboutFDA/Transparency/Basics/ucm193949.htm.

Manufacturers and distributors of products labeled as Dietary Supplements are required by law to report any serious adverse events to the USFDA within 15 business days and to provide any additional medical information they obtain within a year of the adverse event report. However, manufacturers or distributors of products bearing a Nutrition Facts food label are not required to report serious adverse events to FDA. Therefore, all adverse event reports that FDA has received in connection with these products are voluntary. Although the USFDA investigates all reports, the agency may not always have access to all the information needed to conclusively determine the cause of an adverse event. In addition, the USFDA may receive reports containing incorrect or incomplete contact information, making follow-up difficult or impossible, especially in the context of existing privacy laws.

Educational and legislative initiatives have improved the public's and health care professionals' understanding of the health consequences of energy drink consumption. These initiatives have decreased the rates of energy drink–related cases reported to the National Poison Data System. However, health care providers may not always ask patients about the consumption of energy beverages. Herbal ingredients found in many energy drinks may interact with prescription medications, which can further confound medical intervention. Undiagnosed medical conditions, such as cardiac abnormalities, can also lead to serious adverse events following the consumption of energy beverages. Despite past efforts to educate the public and health care providers, as well as improvements in legislation and labeling, additional studies are clearly needed to identify methods to minimize adverse events and deaths associated with consumption of energy beverages.

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Reference

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