

Are energy drinks safe?

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Despite reported health concerns, the popularity of energy drinks is steadily climbing. Between 2008 and 2012, for example, energy drink sales jumped by 60% in the United States. By 2017, annual energy drink sales in the U.S. are expected to exceed \$21 billion.

Caffeine is the major ingredient in most [energy drinks](#): some may contain up to 500 mg of caffeine, as much caffeine as in four or five cups of coffee. Energy drinks may also contain sugar, guarana, taurine, ginseng, vitamins, glucuronolactone, and other ingredients. These drinks are widely promoted as products that increase alertness and enhance physical and mental performance. Marketing energy drinks to young people has been quite effective. For example, almost one-third of teens drink them regularly.

With the growing popularity of energy drinks, researchers and public health professionals are increasingly concerned about their possible negative health impacts, in particular their effects on cardiovascular

health. A review article published in the September 2016 issue of *Advances in Nutrition*, "Energy Drinks and Their Impact on the Cardiovascular System: Potential Mechanisms," evaluates the research findings, with an emphasis on how energy drinks affect blood pressure and [heart](#) rate.

According to the article's authors, the most recent research suggests that energy drink consumption can lead to "an acute adverse hemodynamic profile." In other words, energy drinks force the heart to work harder to pump blood throughout the body, which can potentially lead to heart attack or stroke. Recent studies that used heart beat-to-beat measurements, for example, showed that the ingestion of just one can of a sugar-sweetened energy drink resulted in an augmented workload to the heart as evidenced by elevated blood pressure, heart rate, and cardiac output.

The cardiovascular responses to the ingestion of energy drinks are best explained by the actions of caffeine and sugar, with little influence from other ingredients. However, a role for other active ingredients such as taurine and glucuronolactone cannot be ruled out.

The authors note that the cardiovascular changes in response to energy drinks have only been broadly studied in healthy young humans. They have, therefore, called for more research on the cardiovascular effects of energy drinks in people with a higher risk for heart disease or those with pre-existing hypertension or impaired cerebral circulation.

In conclusion, the authors note, "given their global popularity and estimated market value of more than \$40 billion, accurately assessing the potential adverse effects of energy drinks has important implications for the prevention and management of obesity, type 2 diabetes, and cardiovascular disease."

More information: E. K. Grasser et al. Energy Drinks and Their Impact on the Cardiovascular System: Potential Mechanisms, *Advances in Nutrition: An International Review Journal* (2016). [DOI: 10.3945/an.116.012526](https://doi.org/10.3945/an.116.012526)

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