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Study examines risks, rewards of energy drinks

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Popular energy drinks promise better athletic performance and weight loss, but do the claims hold up? Not always, say researchers at Nova Southeastern University in Florida.

"Energy drinks typically feature caffeine and a combination of other ingredients, including taurine, sucrose, guarana, ginseng, niacin, pyridoxine and cyanocobalamin," says Stephanie Ballard, PharmD., assistant professor of pharmacy practice at Nova Southeastern University's West Palm Beach campus.

"Most of the performance-enhancing effects of energy drinks can be linked to their caffeine content," she says. "Caffeine has been consistently been observed to enhance aerobic performance, although its effects on anaerobic performance may vary."

Ballard and colleagues Jennifer Wellborn-Kim, PharmD., and Kevin Clauson, PharmD., authored a paper, Effects of Commercial Energy Drink Consumption on Athletic Performance and Body Composition, in a recent issue of *The Physician and Sportsmedicine*.

"There is conflicting evidence of the impact of energy drinks on weight loss," Ballard adds, "although some data suggest that combining energy drink use with exercise may enhance body fat reduction. Increases in burning calories and losing weight are likely subject to diminishing returns as users become habituated to caffeine. "

Don't forget these drinks are often loaded with sugar, she adds. "Despite their use for weight loss, energy drinks may be contributing to the obesity epidemic alongside less caffeinated, sugary drinks like soda."

Red Bull-swilling athletes should be aware of the caffeine limitations of sports governing bodies, as well as the risks to their health.

"Although caffeine was removed from the World Anti-Doping Agency's prohibited list in 2004, it is still followed under the 2009 Monitoring Program to identify patterns of misuse," says Ballard. "For the National Collegiate Athletic Association, athletes are considered to be doping if urinary caffeine is greater than 15 µg/mL, which is about the same as drinking eight cups of coffee, each containing 100 mg of caffeine."

As with any active substance, energy drink ingredients may cause adverse effects, particularly with high episodic consumption, warns Ballard. And these drinks, which are classified as dietary supplements, are in a regulatory gray area, allowing them to sidestep the caffeine limitations assigned to foods and soft drinks.

"The FDA limits caffeine in soft drinks to 71 mg/12 fluid oz," says Ballard. "But energy drinks can contain as much as 505 mg of caffeine in a single container - the equivalent of drinking 14 cans of Coca-Cola. Caffeine has been reported to cause insomnia, nervousness, arrhythmias, osteoporosis, cardiovascular disease, pregnancy and childbirth complication, gastrointestinal upset and death."

But small amounts can be safe and still boost performance. "Caffeine in amounts of up to 6 mg/kg may produce benefits with low risk of adverse effects," says Ballard.

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