

# Use energy drinks when cramming for exams? Your heart may pay a price

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Final exams – and the ensuing all-night study sessions they cause – are looming large for many students across the country. But reaching for energy drinks to perk up those drooping eyelids and boost study performance could do more harm than good.

Recent research shows just one energy drink can affect blood vessel function. And other studies have shown these caffeine-and-herbal concoctions can increase [stress hormones](#) and are linked to changes in [blood pressure](#) and the heart's electrical activity.

"What I say to people who are studying is to avoid energy drinks. And to people who are exercising, avoid them," said Dr. John Higgins, chief of cardiology at Lyndon B. Johnson Hospital, a sports cardiologist and a professor at McGovern Medical School at UTHealth in Houston.

Higgins led a study that looked at the effects of energy drinks on blood vessel function on 44 non-

smoking, healthy medical students who were in their 20s. He and his colleagues tested the students' blood vessel, or endothelial, function and then tested it again 90 minutes after they had consumed a 24-ounce energy drink.

The preliminary results, presented earlier this month at the American Heart Association's Scientific Sessions conference, suggest the drink reduced by about half how much the participants' blood vessels were able to dilate, or expand.

"During exercise or under stress, your arteries have to open up because they need to get blood to the muscles, heart and brain," Higgins said. "If there is impairment during exercise or mental stress, it could lead to adverse effects."

The market for caffeine-infused energy drinks has grown during the last decade, with new blends adding vitamins and other ingredients touting everything from memory enhancement to concentration benefits. According to research company Statista, energy drink sales reached \$2.8 billion in 2016, with consistent increases since 2011. A 2016 Statista survey of 18- to 69-year-olds showed 1 in 4 people had an energy drink almost every day.

Coffee and its caffeine have gotten the green light, in moderation, from the U.S. Department of Agriculture. Federal dietary guidelines published every five years as a go-to source for nutrition advice say three to five cups a day, which can be up to 400 milligrams a day of caffeine, can be part of a healthy diet.

But Higgins said energy drinks are more than just caffeine.

"We suspect it has to do with their blends," he said. "They have lots of sugar and caffeine, but also taurine, an amino acid, guaranine (from a South American plant), another source of caffeine, and

they sometimes have vitamins. But they have these substances at levels in excess of the recommended daily allowance, sometimes even 10 times or more."

On campus, there's a common pattern, said LaVelle Hendricks, an associate professor of counseling and a student affairs coordinator at Texas A&M University-Commerce, about an hour northeast of Dallas. When students are dealing with stress and lack of sleep, "when they get close to exam time, they turn to these drinks," he said. "They get this boost of energy, but then they have headaches and they crash. As a way to re-energize and get that same boost, they repeat the cycle."

The tough-but-true advice is there are no shortcuts.

"You have to stick to a regimen," Hendricks said. "It entails going to class, studying, eating right, exercising right and getting the proper amount of sleep."

A *Journal of American College Health* study in 2011 said the consumption of energy drinks has been associated with perceived stress levels of college students. Middlebury College in Vermont banned the on-campus sale of energy drinks. In Britain, many supermarkets have begun banning sales to children under 16, and the government is considering other restrictions.

Higgins said he'd like more short- and long-term studies that show how these energy drinks – and their blends of ingredients – work on the body. So far, the evidence has been inconsistent, he said, with some showing improved performance, some reduced and others no effect.

Higgins warns that some people are more at risk for the effects from [energy drinks](#), including people under 18; people of small stature; people who don't normally drink caffeine or are sensitive to it; pregnant or breastfeeding women; people taking stimulants for conditions such as attention deficit disorder; and people with certain medical or cardiovascular conditions.

For a healthy boost during studying, Higgins suggests high-intensity exercise, or even just a

quick run up and down the stairs. Getting outside, "stretching the eyes" with relaxed nature-watching or a power nap also can help, he said.

"If you are really that tired and coffee isn't keeping you awake, you should probably go to sleep. You aren't going to remember anything for the test anyway."

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