

# Energy drinks may pose risks for people with high blood pressure, heart disease

November 6 2007

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Downing an “energy drink” may boost blood pressure as well as energy, researchers said in a small study presented at the American Heart Association’s Scientific Sessions 2007.

In the study, conducted by Wayne State University researchers, blood pressure and heart rate levels increased in healthy adults who drank two cans a day of a popular energy drink.

While the increases didn’t reach dangerous levels in the healthy volunteers, the increases in blood pressure and heart rate could prove to be clinically significant in patients with heart disease or in those who consume energy drinks often, said James Kalus, Pharm.D., senior manager of Patient Care Services at Henry Ford Hospital in Detroit, Mich., and a former Wayne State researcher who led the study. “Individuals with high blood pressure and heart disease should be advised to avoid these drinks.”

Most energy drinks contain high levels of caffeine and taurine, an amino acid also found in protein-containing foods such as meats and fish. Both have had effects on heart function and blood pressure in some studies. In contrast, “sports drinks” in general contain various mixtures of water, sugars and salts alone, without chemicals aimed at increasing “energy” or alertness.

The 15 healthy young adult participants (53 percent female, average age 26) were asked to abstain from other forms of caffeine for two days

prior to and throughout the study. On the first day baseline measurements of blood pressure, heart rate and electrocardiogram (ECG) were taken. Then the participants drank two cans of an energy drink that contained 80 milligrams of caffeine and 1,000 milligrams of taurine. Researchers then measured blood pressure, heart rate and ECG again at 30 minutes, one, two, three and four hours after consumption. This continued for the next five days, and then, on the seventh day, the researchers followed the same procedures used on the first day.

The researchers compared average baseline measurements on days one and seven to maximum values during the observation period.

Within four hours of energy drink consumption, maximum systolic blood pressure (the top number that represents pressure while the heart contracts to pump blood to the body) increased by 7.9 percent on day one and 9.6 percent on day seven; diastolic blood pressure (the bottom number that represents the pressure when the heart relaxes between beats) increased by 7 percent and 7.8 percent, respectively, within two hours of energy drink consumption. Heart rate increased by 7.8 percent on day one and 11 percent on day seven.

Over the duration of the study, heart rates increased five to seven beats per minute and systolic blood pressure increased 10 millimeters of mercury (mmHg) after energy drink consumption, the researchers reported. No significant ECG changes were observed.

“This occurred while participants were sitting in chairs watching movies,” said Kalus. “The increases in heart rate and blood pressure weren’t enough for something to happen acutely, but a person on hypertension medication or who has cardiovascular disease may not respond as well.”

“While energy drinks increase concentration and wakefulness, people

with risk factors for heart disease could have a bad reaction. The subjects in this study were healthy with low blood pressure.”

Kalus feels that the increases in blood pressure and heart rate may be due to the caffeine and taurine in the drinks. However, the energy drink used in the study had as much caffeine as one to two cups of coffee, and usually the effect of this amount of caffeine on blood pressure would be expected to wane over 2 or 3 days of regular intake. Some of the other energy drinks contain much higher levels of caffeine, he said.

“Thousands of young adults are using these drinks,” Kalus said. “Some are mixing the energy drinks with alcohol. We don’t necessarily know how much they are drinking at a time or whether they are drinking before exerting themselves playing basketball or dancing.”

Some of the marketing for energy drinks is combined with extreme sports, he said.

The researchers are unsure what effect exercise or the combination with alcohol has on a person who drinks energy drinks; however, some countries advise against using energy drinks to quench thirst while playing sports.

Blood pressure and heart rate naturally go up during physical activity, Kalus said. “This could be further augmented by energy drinks. Energy drinks could affect some individuals if they didn’t know they had a problem in the first place,” he said. “The study raises some concerns.”

Until further study, Kalus said people with high blood pressure or heart disease should avoid energy drinks because they could affect their blood pressure and may even alter the effectiveness of their medications.

Source: American Heart Association

Citation: Energy drinks may pose risks for people with high blood pressure, heart disease (2007, November 6) retrieved 20 March 2024 from <https://medicalxpress.com/news/2007-11-energy-pose-people-high-blood.html>

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