

A little Red Bull may give you wings, but it probably will not affect your Tpe

“Energy drinks” (EDs) often contain high levels of caffeine and sugar, with variable levels of taurine, guarana, other “supplements,” and on occasion, vitamins. Frequently chosen by teens and young adults, the sale of EDs has enjoyed tremendous market growth. Over 4.6 billion cans of the most successful of these beverages, Red Bull, were sold in 2011(1). This prosperity resulted from the strong, recent worldwide annual growth, such as 11% in the United States, 35% in France, and 86% in Turkey.

Whether consumed alone or with alcohol or other drugs, EDs may have significant physical and behavioral effects (2-4). Marketing materials for EDs often imply that these products will improve energy level, attention span, and physical and/or mental performance (5). Red Bull has been shown to increase heart rate and blood pressure and can reduce cerebral blood flow; these effects can be potentiated under conditions of stress (6). EDs were responsible for over 20,000 emergency department visits in the United States in 2011, including a doubling in the incidence between 2007 and 2011 (7).

In this issue of the Anatolian Journal of Cardiology, Elitok et al. (8) reported on the electrocardiographic effects of Red Bull. (8) They had particular interest in Red Bull’s effects on ventricular repolarization. The dispersion of ventricular repolarization (DVR), as indicated by a longer interval between the T wave’s peak and end (Tpe or Tpe/QT), correlates with arrhythmic risk in multiple populations (9-15). The healthy volunteer medical students in this investigation consumed a single can of Red Bull under controlled conditions, and the effects on heart rate, blood pressure, and electrocardiographic measurements were observed. As expected, both blood pressure and heart rate increased following Red Bull consumption. However, no change in electrocardiographic DVR was found.

Should young club-going people take this news as vindication of their next order for a “vodka and Red Bull?” Can we write off Red Bull’s cardiovascular effects as benign? Not so fast. The absence of an acute effect of a small dose of ED on one arrhythmia risk factor measured only in ECG lead V5 among a relatively small number of healthy young adults at rest does not equate to definite harmlessness. Our understanding of Red Bull’s effects remains incomplete, especially in cases wherein larger doses are consumed, especially by sicker people and under more strenuous conditions. Would

the consumption of five cans of Red Bull affect healthy subjects’ ECGs? Might only one serving of Red Bull affect ECG of a cardiomyopathy patient or ECG of a patient taking other cardiovascular active medications? Does chronic Red Bull consumption have the same or different effects as a Red Bull binge?

Elitok et al. (8) should be congratulated for their interest in exposing potentially dangerous effects of popular EDs. More studies are required for us to declare Red Bull consumption to be harmless. For now, we can take heart in the absence of one signal of potential danger. At least this little bull is not in the proverbial china shop.

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