

Caffeinated energy drinks in children

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Abstract

Question A 14-year-old boy came to my office to discuss his frequent consumption of energy drinks to enhance his performance at school and while playing soccer. What is the recommended use of energy drinks in children and is there any harm in consuming them?

Answer *Energy drinks* are beverages with a high concentration of caffeine and additional stimulants. They are sold in numerous places and are easily accessed by children, adolescents, and young adults. Many reports warn about potential adverse effects associated with their consumption, especially in combination with alcohol among adolescents, and in combination with stimulant medications among children treated for attention deficit hyperactivity disorder. Children and adolescents should avoid energy drinks, and health care providers should educate youth and their parents about the risks of caffeinated drinks.

Boissons caféinées énergisantes chez l'enfant

Résumé

Question Un garçon de 14 ans est venu à la clinique et m'a parlé de sa fréquente consommation de boissons énergisantes pour accroître son rendement à l'école et sa performance au soccer. Quelles sont les recommandations concernant les boissons énergisantes chez les enfants et y a-t-il des risques à en consommer?

Réponse Les *boissons énergisantes* sont des breuvages qui ont une forte teneur en caféine et autres stimulants. Elles sont vendues un peu partout et sont facilement accessibles aux enfants, aux adolescents et aux jeunes adultes. De nombreux rapports mettent en garde contre les effets indésirables possibles associés à leur consommation, en particulier en combinaison avec de l'alcool chez les adolescents ou en même temps que des médicaments stimulants pour le traitement des enfants ayant un trouble d'hyperactivité avec déficit de l'attention. Les enfants et les adolescents devraient éviter les boissons énergisantes, et les professionnels de la santé devraient renseigner les jeunes et leurs parents au sujet des risques associés aux boissons caféinées.

In the past 2 decades, consumption of energy drinks has become a worldwide phenomenon. *Energy drinks* are beverages that contain caffeine in high concentrations, but they can also include vitamins, herbal supplements, sweeteners, and additional stimulants such as taurine, ginseng, and guarana. They are advertised as increasing energy, improving athletic performance, and supporting weight loss. In the United States, energy drinks are marketed as dietary supplements, limiting regulation of these products,¹ and allowing easy access for children and adolescents. Caffeine is the main ingredient in energy drinks, to the extent of 70 to 80 mg per 8-oz serving. Even higher concentrations can be found in "energy shot" beverages.² Additional components such as guarana, yerba mate, and cocoa can augment these concentrations.³

Easy access

The ease of access to energy drinks among children and adolescents is growing and is a source of concern.⁴ Almost

a third of a group of 12- to 24-year-olds reported regular consumption of energy drinks.⁵ A study from Germany reported that among more than 1000 adolescents, 94% were aware of energy drinks, 53% had tried them, and one-quarter drank them regularly.² Half of college students attending a US state university (n=253) reported consuming more than 1 energy drink each month in 2007, mostly to deal with insufficient sleep (67%), to increase energy (65%), and to drink with alcohol while partying (54%).⁶

Risks in children and youth

The use of energy drinks among children and adolescents is problematic, especially when combined with alcohol.⁷ This type of consumption is considered by many teenagers and students to be a primary route to socializing and meeting people.⁸ Furthermore, because they are not habitual caffeine users, the risk of caffeine intoxication in children might be amplified owing to an absence of pharmacologic tolerance.⁹

There are reports of adverse events associated with energy drinks beyond the caffeine overdose and adverse effects related to combination with alcohol. Outcomes include liver damage, kidney failure, respiratory disorders, tachycardia, agitation, seizures, psychotic episodes, and even death.² Other reports documented decreased reaction time, increased blood pressure, and sleep disturbances in children.¹⁰

One area of special concern is the use of energy drinks among children with attention deficit hyperactivity disorder who are already taking other stimulants. Increased heart rate and blood pressure among these children are of great concern, as is the documented higher rate of substance abuse among adolescents with attention deficit hyperactivity disorder.¹¹

Other groups of children and adolescents at risk are those with eating disorders, as they might already have a low-capacity circulatory system; children with obesity, as most energy drinks are rich in calories; and adolescents in rapid growth phases, as energy drinks are a potential limiting factor in bone acquisition and growth.²

Canadian regulation

Substantial criticism has been aimed at the marketing and regulation of energy drinks in Canada, especially as marketing targets children and youth through carefully designed advertising campaigns.¹²

In 2013, Health Canada changed the classification of energy drinks from *natural health products* to *food*, and limited a single-serving bottle to 180 mg of caffeine, about half the recommended maximum dose of caffeine for adults in Canada. Daily caffeine intake for children younger than 12 years of age, according to Health Canada, should not exceed 2.5 mg/kg of body weight.¹³ According to media reports, by the end of 2012 Health Canada had received 86 reports of adverse reactions to energy drinks.¹⁴

Children and adolescents should avoid energy drinks. Health care providers have an essential role in the education of youth and their parents about the risks of caffeinated drinks, especially in combination with alcohol. 🌿

Competing interests

None declared

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