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, 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. Additional components such as guarana, yerba mate, and cocoa can augment these concentrations.

Easy access
The ease of access to energy drinks among children and adolescents is growing and is a source of concern. Almost a third of a group of 12- to 24-year-olds reported regular consumption of energy drinks.

Risks in children and youth
The use of energy drinks among children and adolescents is problematic, especially when combined with alcohol. This type of consumption is considered by many teenagers and students to be a primary route to socializing and meeting people. 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.
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. 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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References

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Do you have questions about the effects of drugs, chemicals, radiation, or infections in children? We invite you to submit them to the PRETx program by fax at 604 875-2414; they will be addressed in future Child Health Updates. Published Child Health Updates are available on the Canadian Family Physician website (www.cfp.ca).