

Prevalence and Impact of Caffeine Consumption among Adolescents

Roland Griffiths, a leading expert on caffeine at Johns Hopkins University notes that "Caffeine is the most widely used mood-altering drug in the world." (1)

It's a drug that is found in everyday beverages like coffee, tea, colas, chocolate, and it is, for the most part, a substance that most people are comfortable with and use in moderation without adverse effects. The question is: with increasingly wide availability, in forms meant to easily entice youth through sugary concoctions, is caffeine becoming an issue of concern for adolescents and their health?

The June 2001 edition of the American Psychological Association Monitor notes that:

Children today drink twice as much soda as they did 20 years ago, averaging as much as 20 ounces a day. Quenching that thirst for pop often comes with a price tag of 100 mg of caffeine, well beyond the threshold for detecting mood-altering and behaviorally active effects. Some children and adolescents then top off that daily cola intake with coffee drinks--the iced cappuccinos and "caffeine blasts" so popular in today's café scene. (2)

The concern, therefore, is that children and adolescents are increasingly exposed to the effects of caffeine in all forms.

High Caffeine Energy Drinks

Of particular concern is the recent and growing popularity of high caffeine energy drinks.

The organization Dietitians of Canada notes that "the term energy drink refers to a unique category of beverages with claims to stimulate and energize the user, improve alertness and delay fatigue", with caffeine added from both natural and synthetic sources. (3) The Canadian Medical Association Journal, in an editorial titled "'Caffeinating' children and youth" comments that "energy drinks are very effective high concentration caffeine delivery systems", providing the consumer with widely differing total amounts of caffeine. (4)

An Expert Panel on Caffeinated Energy Drinks Report, convened in 2010, even went so far as to recommend that Health Canada might consider using a "more accurate designation" of these products with the term "stimulant drug containing drinks" and placing the term "clearly on the front panel of the product." (5)

Dietitians of Canada note that "there is some evidence to suggest that the effects of pure caffeine (such as is often added to energy drinks) differs from beverages such as coffee where caffeine is only

one among hundreds or thousands of other plant constituents, some of which may antagonize caffeine's actions." (3)

Other products can be found in many energy drinks, such as "guarana, a Brazilian plant whose seeds are high in caffeine, and yerba mate, a South American herb used to make tea" Caffeine in food— both natural sources of caffeine and which increase the overall caffeine content of the product. (3)

High caffeine energy drinks also may contain ingredients like taurine and ginkgo biloba that risk interfacing with certain medications and are lacking health impact research information. (3)

Concerns about Children and Youth

There are "indications that the overall dietary intake and consumption patterns of caffeine by Canadians, particularly by adolescents and young adults, is increasing." The high caffeine products are "readily available in several locations such as convenience stores, gas stations and grocery stores." (6)

The fact that the "marketing of energy drinks is distinctly different from that of other highly caffeinated beverages" is of concern. "Energy drinks are often targeted toward children and youth through carefully designed advertising campaigns as well as sponsorship of events such as snowboarding and skateboarding competitions." (4)

In fact, 35% of Ontario students consume energy drinks, and 12% of Ontario students report having an energy drink in the past week. (7)

In an information bulletin for parents on caffeine in energy drinks, Health Canada notes:

Energy drinks are not recommended for children because of their high levels of caffeine, and other ingredients. In some cases, one energy drink could have more caffeine than the safe daily intake for many children and teens.

It's hard to link levels of caffeine to specific health effects because everybody has a different tolerance for caffeine, but we do know that children are at increased risk of experiencing behavioural effects from consuming caffeine.

Health Canada has received a number of reports of suspected health problems associated with energy drinks. Symptoms have included irregular heart beat and nervousness. If you suspect your child is experiencing such problems contact your health care professional and report the problem to the manufacturer. (6)

Health Canada has established recommended maximum caffeine intake levels for children and women who are planning to become pregnant, pregnant women and breast feeding mothers, but "has not developed definitive advice for adolescents 13 and older because of insufficient data." They do pose that "the maximum adult caffeine dose may not be appropriate for light weight adolescents or for younger adolescents who are still growing". They provide a listing of beverages and their approximate values of caffeine.

Another concern addressed by nutritionists is that energy drinks not be mistaken for drinks that hydrate children, youth and adults during or following exercise or high activity levels – “because of their caffeine content, they can actually mask the signs of dehydration.” (6)

Increased risks from the energy drink-alcohol combination

In a document on “Caffeinated Alcoholic Beverages in Canada: Prevalence of Use, Risks and Recommended Policy Practices,” (9) the authors note that:

The consumption of caffeinated alcoholic beverages (CABs) has become a topic of interest among health and safety researchers and advocates in several countries, including Canada, because of accumulating evidence linking the combined use of alcohol and caffeine to increases in health and social harms.

Despite explicit warnings about health and safety risks from Health Canada, several provincial health ministries and even energy drink producers, the mixing of energy drinks and alcohol appears to be a common and growing practice, especially with youth and young adults in Canada.

The Canadian Alcohol and Drug Use Monitor Survey (CADUMS) 2010 data showed that the use of caffeinated alcoholic beverages among young adults (ages 15 – 24) is approximately four to five times higher than use among the general. (9)

A national study of high school students showed that 20% consumed alcohol mixed with energy drinks in the last year and consumption of such drinks was positively associated with substance use (smoking, past-year heavy drinking, and marijuana use), absence from school, and academic performance. (10)

From studies in British Columbia and Australia assessing young people’s motivation for combining alcohol and energy drinks, it appears that there are a number of reasons for the combination, including: “to feel more energetic, to stay awake and party longer when drinking, and to get a buzz quicker.”(9)

The adverse health and safety effects of the alcohol and high caffeine beverages are significant, including dehydration, bad hangover, vomiting, heart palpitations and increased consumption of alcohol and energy drinks. (9)

Even more important is that those who consume the combination “experience a significantly higher prevalence of negative alcohol-related consequences compare to those who consume alcohol alone,” such as:

- Being sexually assaulted or committing sexual assault
- Riding in a car with an impaired driver
- Driving impaired
- Being hurt or injured
- Requiring medical treatment.

Researchers found that these increased risks and consequences were prevalent even when they controlled for the amount of alcohol consumed or the individual’s propensity to engage in risky behaviours. (9)

Researchers suggest that the reasons for these increased risks and harms come from the person's decreased awareness of how much they are intoxicated, the masking of the effects of alcohol by the caffeine, and the ability to drink longer and consume more because of these effects. (9)

Increased awareness for parents and youth

Two resources have been developed by the Canadian Centre on Substance Abuse (CCSA) to draw attention to the increased risks associated with the alcohol and caffeine combination:

[Factsheet for parents](#) and [Factsheet for youth](#):

References

1. Teens Are Waking Up to the Caffeine Habit

Author: Ax, Joseph

Source: The Record of Hackensack (July 2007)

Link: [News Article](#)

2. A sip into dangerous territory

Authors: O'Connor, Eileen

Source: American Psychological Association Monitor (June 2001): 32(6)

Link: [Article](#)

3. Energy Drinks Revisited

Authors: Dietitians of Canada

Source: Practice Based Evidence in Nutrition (November 2012)

Link: [Document](#)

4. "Caffeinating" children and youth

Authors: MacDonald, N., Stanbrook, M., & Hébert, P.C. Source: Canadian Medical Association Journal (2010)

Link: [Article Text](#)

5. Health Canada's Proposed Approach to Managing Caffeinated Energy Drinks

Authors: Health Canada

Source: Food directorate; Health products and Food Branch (October 2011)

Link: [Document](#)

6. Information for Parents on Caffeine in Energy Drinks

Authors: Health Canada

Source: Food and Nutrition: Caffeine

Link: [Document](#)

7. Drug use among Ontario students, 1977-2015: Detailed OSDUHS findings

Authors: Boak, A., Hamilton, H.A., Adlaf, E.M., & Mann, R.E.

Source: CAMH Research Document Series No. 41. (2015)

Link to: [2015 Survey Results](#)

8. Food and Nutrition: Caffeine in Food

Authors: Health Canada

Source: Food and Nutrition

Link: [Document](#)

9. Caffeinated alcoholic beverages in Canada: Prevalence of use, risks and recommended policy responses.

Authors: Brache, K., Thomas, G., & Stockwell, T.

Source: Canadian Centre on Substance Abuse (2012)

Link: [Document](#)

10. The consumption of alcohol mixed with energy drinks: prevalence and key correlates among Canadian High School Students.

Authors: Azagba, S., Langille, D., Asbridge, M.

Source: *DMAJ Open*, (1) 1:E19-E26.

Link: [Document](#)

