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TOPO

SUMMARIES BY THE NUTRITION • PHYSICAL ACTIVITY • WEIGHT TEAM

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In this issue

And answers to the following questions

- What health risks do energy drinks pose for young people?
- Is action required? And, if so, in what way?

What is *Topo*?

The *TOPO* collection is produced by the multidisciplinary team on nutrition, physical activity, and weight-related problems prevention (Nutrition, activité physique et prévention des problèmes reliés au poids or NAPP)[1] at the Institut national de santé publique du Québec (INSPQ). The collection disseminates knowledge to inform the choices of practitioners and decision makers in the prevention of weight-related problems. Each issue addresses a theme and combines a critical analysis of the relevant scientific literature with observations or illustrations that can assist in applying this knowledge in the Québec context. The *TOPO* collection may be found at http://www.inspq.qc.ca/topo.

1 The NAPP team is mandated to develop expertise on the issue of weight to support and assist the public health network's efforts in this field. The NAPP team is part of the Habitudes de vie unit, in the Direction du développement des individus et des communautés of the INSPQ.

Energy drinks: Threatening or commonplace? An update

The energy drink market has grown phenomenally in recent years. These products are said to enhance energy levels, physical alertness, and performance, and, as a result, are used by consumers for various reasons on various occasions. According to the literature, the reasons given by consumers include: staying alert, boosting energy, increasing motivation, improving sports performance, and partying all night. Some consumers also drink them because they taste good, to quench their thirst, for their perceived health benefits, and to improve the taste of alcoholic beverages.[1]

Recent data have been published on the consumption of energy drinks by high-school students in Québec. In addition, the legal framework regulating these drinks in Canada has recently been changed. Drawing on this new information, this update of the *TOPO* summary published in August 2011 reports on the extent to which young people are consuming energy drinks and the level of health risk.

Energy drinks: Definition and composition

In this document, the term "energy drink" is used to designate any product in the form of a drink or concentrated liquid that claims to contain a mixture of ingredients having the property to raise energy levels and physical alertness, excluding sports drinks such as Gatorade® or Powerade®.

As a rule, the main ingredients of energy drinks are water, sugar, and synthetic or natural (e.g., from guarana, yerba mate, and coffee beans) caffeine. Caffeine is the main active ingredient of energy drinks and is often accompanied by various other substances (e.g., taurine, ginseng, and vitamins) that are believed to contribute to the drinks' stimulating effect.

Energy drink consumption

While still incomplete, information about the consumption of energy drinks by children and teenagers in Québec is increasing. Recent surveys show that they are drunk by teenagers, especially teenage boys,[2] and that some of the teenagers drink the products with alcohol.[3]

According to the Québec Health Survey of High School Students 2010-2011,[2] 24.5% of high school students drink sweetened beverages every day (these include fruit drinks, carbonated soft drinks, sports drinks, and energy drinks). More specifically, 1.5% of the students consume energy drinks every day. Also, 25.4% rarely drink them; 9.1% drink them twice or three times a month; 4.0% drink them once a week; and 2.6% drink them between twice and six times a week. This means that 17% of high school students drink energy drinks at least twice a month. It should be noted that the usual frequency of consumption provides no information about the number of drinks consumed at a time.

According to data from Canada's 2010-11 Youth Smoking Survey, 19% of high school students in Québec had drunk energy drinks along with alcohol in the course of the year.[3] However, there is no information about the frequency of this practice. The survey also reveals that, across Canada, combining energy drinks with alcohol is particularly popular among young people who consume greater quantities of alcohol and drugs.[3]

Energy drinks are often confused with **sports drinks** (e.g., Gatorade®, Powerade®). However, sports drinks do not contain caffeine or other stimulants and are not carbonated. They have less sugar and contain mineral salts (generally sodium, potassium, and chlorine) to meet the demands of sustained physical effort.

New regulation: From natural health product to food

Energy drinks are categorized as "products in food formats," which are at the interface between foods and natural health products and are henceforth subject to the regulatory framework governing foods, the *Food and Drugs Regulations* (FDR). They are now included in a new category of beverages with a caffeine content of between 200 and 400 mg/L.[4] Health Canada classified energy drinks as a food on the basis of public perception, history of use, product format, and product representation. This new framework brings with it new requirements such as the product's composition (content in caffeine, taurine, vitamins, etc.). Concentrated versions, available in the form of a shot, continue to be subject to the *Natural Health Products Regulations,* because of their format, which according to Health Canada distinguishes them from traditional foods.

Potential health effects

Consumption of energy drinks is a relatively recent phenomenon and few high-quality studies have been undertaken to evaluate their health implications.[5] According to the available scientific literature, the potential effects of consuming these beverages are primarily linked to their caffeine and sugar content.[1] As for other ingredients, the quantities found in energy drinks appear to have few undesirable short-term effects.

The effects of caffeine consumption

There is no doubt that caffeine is the world's most consumed legal stimulant. It can be found in numerous products besides energy drinks, including coffee, tea, soft drinks, chocolate, confectionery, and medication. It is often consumed for its effects on energy and concentration levels. However, its effects are not always positive. Even moderate caffeine consumption can cause some people to experience discomfort, with symptoms such as headaches, palpitations, agitation, irritability, restlessness, tremors, and gastrointestinal discomfort.[1] Sensitivity to caffeine can vary significantly from one individual to the next.

Regardless of age group and medical condition, daily caffeine consumption in excess of recommended limits can eventually result in experiencing symptoms of caffeine toxicity ranging from nausea, followed by vomiting, to convulsions or serious heart problems.[1] Table 1 gives the maximum recommended daily caffeine intake for people in good health, according to Health Canada.

Table 1: Health Canada's recommended maximum daily caffeine intake for people in good health and equivalent number of cups of coffee

Population	Maximum recommended daily caffeine intake	Equivalent number of cups of filter coffee containing 135 mg of caffeine per cup
Children aged 12 and under	2.5 mg/kg body weight	
4-6 years *7-9 years* *10-12 years*	*45 mg* *62.5 mg* *85 mg*	≈ 1/3 of a cup ≈ 1/2 cup ≈ 2/3 of a cup
Teenagers aged 13 and over	2.5 mg/kg body weight*	
	E.g., a 13 year old girl or boy (45 kg) = 112 mg *17 year old: girl (55 kg) = 138 mg; boy (65 kg) = 162 mg*	≈ 3/4 of a cup ≈ 1 cup; ≈ 1¼ cups
Women planning to become pregnant and pregnant or breastfeeding women	300 mg	≈ 2 ¼ cups
Adults (healthy)	400 mg	≈ 3 cups

* This is a conservative suggestion, not a definitive recommendation. Because of a lack of data, Health Canada has no set recommendation for this age group.

Source: Health Canada.

Excessive and regular caffeine intake may lead to a state of chronic intoxication known as "caffeinism", which is characterised by headaches, palpitations, agitation, irritability, restlessness, muscular jolts, tremors and gastrointestinal discomfort [1].

In addition, regular consumption of products containing caffeine (even at moderate levels) may result in physical and psychological dependence, causing withdrawal symptoms when consumption ceases (e.g., energy loss, drowsiness, depressed mood, difficulty concentrating, headaches, irritability).[1] These symptoms are often the opposite of the desired stimulating effects and can appear after only one night's sleep.

Children and teenagers are more likely to experience the undesirable effects when consuming caffeine.[1] Those with chronic illnesses (cardiovascular, psychiatric, neurological, gastroduodenal, liver and kidney diseases) are more sensitive to caffeine and its toxic effects even after ingesting amounts below the recommended limits. Moreover, a number of drugs (e.g., Clozaril®, Ritalin® and amphetamines) interact significantly with caffeine, and these interactions may result in undesirable effects when caffeinated products have been consumed.

Beverages with a high caffeine content

The caffeine content of energy drinks sold in Canada varies according to brand, variety, and format. Products that comply with the new standards can contain up to 100 mg to 180 mg per non resealable container depending on the format, the equivalent of one to one and a half cups of coffee or three to five cans of cola. Care must be taken with certain products (for example those identified in bold in table 3) that do not yet comply with the new regulation, as well as small, concentrated formats, a few sips of which contain a substantial amount of caffeine, equivalent to one and a half cups of coffee.

The size of energy drinks has increased in recent years. Initially, energy drinks were generally available in 250-ml cans, slightly smaller than traditional soft drink cans (355 ml). Larger formats are now being sold in Canada, the most common size being 473 ml, although some contain up to one litre. Vials containing a concentrated version of the product are also available (shot format) containing between 60 and 75 ml.

Prior to the new regulation, the average caffeine content of energy drinks approved under the *Natural Health Products Regulations* was 320 mg/L.[1] Since December 2012, energy drinks regulated as food can contain up to 400 mg/L of natural and artificial caffeine, which is twice the maximum level allowed for cola type soft drinks. There is also an additional limit on an energy drink container's total caffeine content.[4] It applies to all single-serving (individual format) energy drinks, namely those under 750 ml and those sold in containers that cannot be resealed, regardless of volume (see table 2). Resealable containers over 750 ml are considered as multi-servings and their cafeine content should not exceed 360 mg/L. By way of comparison, regular, filter-type, coffee generally has a caffeine content of around 310-850 mg/L.[6] The following table shows the maximum amount of caffeine in different energy drinks sizes and those for caffeinated soft drinks. As was noted earlier, products in the form of a shot as well as caffeinated alcoholic drinks are not subject to these requirements.

Table 2: Caffeine level approved by Health Canada for energy drink and carbonated soft drink

	Maximum allowed caffeine level	Example of caffeine equivalent per container
Energy drinks		
Non resealable containers and those under 750 ml	Maximum 400 mg/L or 180 mg per container	Maximum 100 mg per 250 ml can Maximum 180 mg per 473- ml can Maximum 180 mg per 710-ml can
Resealable containers over 750 m	Maximum 180 mg/ 500 ml (360 mg/L)	Maximum 360 mg per 1 litre containe
Carbonated soft drinks		
Cola	Maximum 200 mg/L	Maximum 71 mg per 355-ml can
Others	Maximum 150 mg/L	Maximum 53 mg per 355-ml can

Table 3 shows examples of caffeine content of various energy drinks, soft drinks and coffee or coffee drinks. Some energy drinks have caffeine content that exceeds the new requirements. Those can be previous versions of the products that have not yet been sold off by retailers. Their sale can be report to the Canadian Food Inspection Agency that will determine the most appropriate action to be taken.

Table 3: Caffeine content per container and per litre of various beverages

Beverages	Caffeine content per serving (mg)	Caffeine concentration (mg/L)
Coffee and coffee beverages[a,b]		
Espresso, one 30-ml serving	30-77	1010-2560
Filtered or percolated, one 250-ml cup	100-198	400-850
Filtered, store bought, one 250-ml cup	78-243	310-970
Medium Tim Hortons® ice cappuccino, 473 ml	120	254
Boissons gazeuses[b]		
Coca-cola® classic, Pepsi® cola, 355-ml can	37-38	105-107
Coca-cola® classic, Pepsi® cola, 590-ml bottle	62-63	105-107
Pepsi® max, 355-ml can	69	194
Pepsi® max, 590-ml bottle	115	194
Mountain Dew®, 355-ml can	51	144
Mountain Dew®, 590-ml bottle	85	144
Carbonated soft drinks[b]		
Red Bull®, 60-ml shot	**80**	**1333**
Red rain®, 60-ml shot	**80**	**1333**
Hype Energy shot®, 60-ml shot	**148**	**2467**
5 Hours Energy®, 57-ml shot	**190**	**3333**
Concentrated energy drinks[b,c]		
Red Bull®, 250-ml can	80	320
Full throttle®, 473-ml can	141	298
Red Bull®, 473-ml can	151	320
Amp® (various flavours), 473-ml can	142-158	300-334
Rockstar®, 473-ml can	160	338
Monster® (various flavours), 473-ml can	150-175	317-370
Rockstar®, 710-ml can	169	238
NOS®, 473-ml can	**194**	**410**
Monster®, 710-ml can	**246**	345
NOS®, 652-ml bottle	**266**	**408**
Red Rain®, 1-Litre bottle	320	320
Caffeinated alcoholic beverages[b,c]		
Rev® (7% alc./vol.), 330-ml bottle	25	53
Rockstar + Vodka® (6.9% alc./vol.), 330-ml can	30 mg + 15 mg guarana	91
Mojo+Guarana®, (7% alc./vol.), 330-ml bottle	30	> 63
Octane 7.0® (7% alc./vol.), 473-ml can	125	264

[a] Food and Drug Administration.[6]

[b] Companies' Canadian Web sites.

[c] Labels of products available in Québec, spring 2013.

Items in bold are the concentrated versions, which are not subject to the new requirements regarding caffeine content, as well as energy drinks exceeding these standards.

The impact on the caffeine intake of children and teenagers

Using available data, it is not possible to assess the total caffeine intake (including the intake from energy drinks) of Québec adolescents and to compare these data with recommended limits. Consuming a single energy drink may, however, result in a substantial intake of caffeine for children and teenagers.

- The caffeine content of a single energy drink (max. 100-180 mg, table 2) exceeds the daily maximum recommended intake for children aged 12 and under (45-85 mg/day, table 1). Even drinks with the lowest concentrations can easily provide too much caffeine for many of them. Health Canada advises against the consumption of energy drinks by children.
- In the case of teenagers, one energy drink consumed by itself or with other foods and drinks containing caffeine can result in an excessive caffeine intake (2.5 mg/kg of body weight ≈ 110-165 mg, table 1). The caffeine content of a single cup of coffee may also exceed this limit.
- Most children and teenagers who occasionally consume an energy drink are likely to experience mild, temporary undesirable effects such as agitation, anxiety, restlessness, headaches, gastrointestinal discomfort, palpitations, and sleep disorders.

Besides energy drinks, children and teenagers are likely to get caffeine from other sources including coffee or coffee beverages, tea, carbonated cola drinks, chocolate, and various caffeinated candies. All of these products have a cumulative effect on the amount of caffeine ingested in a given day.

Beyond the effects of caffeine

Impacts on weight and dental health

The sugar and calorie contents of most energy drinks are alike to those of other sweetened beverages such as carbonated soft drinks and fruit-flavoured drinks (e.g., fruit punch, lemonade, and ice tea).[1] The regular consumption of sugar-sweetened beverages, including energy drinks, is not conducive to a healthy diet. These drinks not only provide an excess of sugar that may promote weight gain, but they can also replace healthier drinks, such as water and milk. Sugar-sweetened beverage consumption has been repeatedly linked to obesity and other health problems.[7,8]

Sugar-sweetened beverages, energy drinks can, if consumed frequently, be harmful to dental health.[1] Their sugar content increases the risk of tooth decay and their acidity can lead to dental erosion, which weakens tooth enamel and causes permanent damage. Studies indicate that energy drinks may be even more likely to cause erosion than other sweetened beverages.

Risks when combining with alcohol

Health Canada advises against consuming energy drinks along with alcohol. Some studies suggest that the caffeine content of energy drinks could make people feel less inebriated, while not, however, alleviating the deleterious effect of alcohol on certain faculties such as motor coordination and reaction time.[1]

Drinking alcohol and energy drinks together has also been linked to the consumption of greater amounts of alcohol and to risk-taking behaviours. However, the consumption of energy drinks is not necessarily the only factor to blame for the amount of alcohol people consume or for the risk-taking behaviour referred to in these studies. It is possible that pre-existing personal or circumstantial factors among those who consume energy drinks may have had some influence. In fact, these drinks are particularly popular with those who consume larger quantities of alcohol and drugs.[9]

Drinks not designed to accompany physical activities

Advertisements associate energy drinks with sports and suggest taking them while engaging in physical activity. However, studies on the effects of energy drinks on sports performance mainly focus on small groups of athletes, and their results are inconsistent; some studies report a positive effect while others do not report any effect.[1]

Moreover, unlike sports drinks, energy drinks are not designed to meet physical-activity-related needs. Although there is little documentation on the undesirable effects and the risks associated with the consumption of energy drinks during physical effort, their composition (carbonated beverages with high sugar and caffeine contents) may result in gastrointestinal discomfort (nausea, bloating, diarrhea) and can hinder rehydration.[1] At the same time, the caffeine content of these drinks could increase the risk of cardiovascular problems during physical effort on account of its diuretic effect and its cardiac toxicity.

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Marketing practices

Warnings labels on packaging[1]

Now that energy drinks are regulated as food, their packaging must include a "high caffeine content" warning.[4] Multiple-serving containers, i.e. resealable containers of more than 750 ml, indicate the caffeine content of a 500-ml serving. The warnings required under the previous regulations "Not recommended for children, pregnant or breastfeeding women and individuals sensitive to caffeine", "Do not consume more than (X) container(s)/serving(s) daily" and "Do not mix with alcohol" still need to be present under the new regulation. Moreover, information on the packaging about active ingredients must now include the quantity of caffeine from natural sources as part of the total declared caffeine content, which was not the case before. A nutrition fact table and a declaration of allergens have been added to the general food labelling requirements to which energy drinks are now subject.

A product with potential negative health effects sold as a traditional sweetened beverage

Conditions of use and warnings apply to energy drinks on account of their high caffeine content. In spite of this, they are sold alongside traditional sweetened beverages as carbonated soft drinks that come in a variety of flavours, in many locations (e.g., convenience stores, grocery stores, and vending machines). In addition, energy drinks are most often sold in large individual containers, usually cans, which cannot be resealed and are intended to be consumed as a single serving.

The marketing of energy drinks may lead one to assume that these products can be consumed in unlimited quantities, without any regard for the consumer's age or state of health. This being the case, consumers may fail to pay attention to the warnings and the conditions of use that accompany these drinks or minimize their importance.

Commercially available alcoholic energy drinks

Health Canada recommends that energy drinks should not be consumed with alcohol and prohibits the sale of energy drinks that come pre-mixed with alcohol, i.e. alcoholic beverages containing ingredients normally used in energy drinks (e.g., artificial caffeine, taurine, vitamins, and minerals). However, adding to alcoholic beverages ingredients that naturally contain caffeine, such as guarana and coffee, is allowed.[10] As a result, mixtures with a caffeine content of between 25 and 125 mg per container (see Table 3) are available in convenience stores, grocery stores and Société des alcools du Québec outlets.

Some of these caffeinated alcoholic beverages (e.g., Rockstar + Vodka® and Octane 7.0®) are similar in appearance to ordinary energy drinks. They are marketed and packaged in ways very similar to energy drinks that do not contain alcohol.[11] Others caffeinated alcoholic beverages (for example Rev® and Mojo®) are more like spirit-based coolers. These ready-to-drink mixes often have the advantage of being less expensive than energy drinks and alcohol purchased separately, and their sweet taste holds greater appeal for those who do not like the taste of alcoholic beverages.[11]

The questions can be raised as to whether it is appropriate to sell alcoholic beverages whose caffeine content is sometimes enough to induce a pharmacological effect, given the potential dangers of mixing caffeine with alcohol. Furthermore, in 2010, the United States recognized that such products were unsafe, and some products were withdrawn from the market.[12] The problem is compounded both by the fact that the total caffeine content of these beverages is not always indicated and by the absence of warning labels required for ordinary energy drinks (e.g., "not recommended for people who are sensitive to caffeine"). Moreover, there are reasons to fear that caffeinated alcoholic beverages may attract young customers and promote the mixing of energy drinks with alcohol.

1 Manufacturers have been given until December 2013 to comply with the relevant food labelling requirements.

Marketing based on a lifestyle that appeals to young people

The promotion of energy drinks is different from that of other caffeinated beverages such as coffee, tea, and carbonated cola drinks. It puts more emphasis on the appeal of their stimulating effects and uses strategies that fit with youth culture.

In addition to direct advertising in sales outlets, energy drink companies use non-traditional marketing methods,[13] such as Internet advertising (e.g., the brand or the company' and social networking sites), contests, sponsorships and partnerships (e.g., sporting and cultural events, and video games). Marketing strategies also exploit themes linked to rebellion, risk-taking, and adventure, which often appeal to teenagers.[11] Indeed, the events and organizations associated with energy drink companies often involve extreme sports (e.g., skate boarding, sky diving, and boxing) and musical styles with youth appeal (e.g., alternative music and hip-hop).[13] Manufacturers also suggest taking advantage of the stimulating effect of their energy drinks for a range of activities such as studying, working, engaging in sports, or even dancing all night long.

The communication channels, activities, and themes used in the marketing of energy drinks associate consumption of the latter with youth and with a lifestyle that is intense and action-packed. Such an approach can be an effective way of connecting with teenagers.

Manufacturers also suggest consuming energy drinks on a variety of occasions, which can make the frequent use of stimulating substances appear normal.

In addition, while the alleged beneficial effects of energy drinks are over-represented in advertising strategies, messages about the risks and potential undesirable effects associated with their use take a back seat. This can lead consumers to believe that energy drinks are harmless and, as a result, consume them in large quantities to get the desired effects.

Influence of marketing on consumer habits

While no studies have been found on the effect of energy drink marketing strategies on the consumption habits of teenagers or other client groups, other research documents the effect of marketing on other health-related behaviours of teenagers such as alcohol[14] and tobacco[15] consumption. For example, multiple exposures to advertising may promote a positive attitude to the consumption of alcohol and make the consumption of large quantities of alcohol appear normal. Advertising may also have a modest, although significant, effect on the introduction of consumers to alcohol and on the amount of alcohol consumed by those who already drink. The same phenomenon could arise in the case of energy drinks, especially given that the strategies used to promote energy drinks encourage consumers to take advantage of their stimulating properties for recreational pursuits and to enhance sports or intellectual performance. Using artificial rather than natural methods to maintain an active pace of life, boost performance, and experience thrills can be promoted or made to appear mainstream in this way. The use of psychoactive substances could also be indirectly promoted.[16]

Noteworthy facts

The potential health issues raised by energy drinks for the general population of healthy adults are above all related to how they are consumed and the lifestyles surrounding their use, rather than to their composition per se. However, among children and adolescents, consuming a single energy drink can exceed the suggested maximum daily caffeine intake and may cause toxicity symptoms.

- Children should avoid consuming energy drinks, and teenagers should limit their consumption thereof on account of the high caffeine and sugar contents and acidity level of these beverages.
- Energy drinks are not designed to meet the needs of those engaging in physical activity and should not be used as substitutes for water or sports drinks.
- Given the possibility that ingesting caffeine and alcohol at the same time can result in more alcohol being consumed and reduce the sensation of inebriation, these two substances should not be consumed simultaneously.

Conclusion

The high caffeine and sugar content of energy drinks, along with their acidity, could have an effect on the health of children and teenagers: caffeine poisoning, sleep disorders, dental health problems, excess weight, etc. In addition, questions can be raised about the way in which the marketing strategies appeal to young audiences, present the frequent intake of large quantities of caffeine and sugar as normal, and make the use of stimulants for recreational or performance-related purposes appear common place.

Impact on the health of young people

Data on the consumption of energy drinks by children and teenagers in Québec and on its impact on their health is incomplete.

Apart from anecdotal cases, current scientific evidence does not enable us to quantify and qualify health problems associated with energy drinks in children and teenagers in Québec. Survey data on the frequency of intake of energy drinks by young people suggest that the latter are not a major contributing factor to the consumption of sugar-sweetened beverages or to sleep disorders associated with frequent consumption. Moreover, the number of energy drinks along with caffeine from other sources consumed on a daily basis by young people has not yet been established. As a result, it is impossible to quantify their daily caffeine consumption and to assess the health risks. Therefore, it could be interesting to include these elements in future surveys on youth's lifestyle habits. This could provide a clearer picture of how great a risk caffeine poisoning poses to young people, while allowing us to monitor its evolution. Special attention should also be paid to other substances ingested along with energy drinks, such as alcohol, drugs, and medication. Documenting why and the circumstances in which this group consumes energy drinks and other caffeinated products and assessing the anticipated and unintended effects of measures put in place to reduce or prevent this practice would enable the design of more effective interventions.

Using available data, it is not possible to conclude that the consumption of energy drinks in Quebec is currently a public health problem. However, frequent consumption of sugar-sweetened beverages is widespread and there is more extensive documentation regarding its health impacts than there is for energy drinks. Nonetheless, because it is a new phenomenon, further research must address the evolution of energy drinks consumption and the associated health implications. More broadly, the increasing variety of caffeinated products developed and marketed in ways that appeal to young customers is a cause of concern and public health organizations should keep a close watch on this trend.

Opportunities for action

It is worth looking at initiatives to prevent children from consuming energy drinks and to limit consumption by adolescents, particularly considering the strategies used to market these drinks and the undesirable effects that frequent or substantial intake of caffeine and sugar can have on health. It should be noted that an increasing number of Québec municipalities prohibit the sale of energy drinks in public establishments.

There have been few evaluations of initiatives to prevent or limit the consumption of energy drinks. It is, therefore, important to be vigilant before initiating interventions to achieve this goal, to make the best possible use of resources and to minimize potential undesirable effects. The issues related to the consumption of energy drinks should be considered within a larger context, i.e. that of the consumption of all sugar-sweetened beverages and to use an approach that creates environments conducive to the adoption of healthy eating habits. Places where young people spend time should adopt similar rules.[15] For example, according to the Québec framework policy on healthy eating and active living (*Politique-cadre pour une saine alimentation et une mode de vie physiquement actif, Pour un virage santé à l'école*), sweetened beverages (this include energy drinks) should not be offered to the students. In addition, beverages containing caffeine should be limited to premises reserved for staff only.[17] Emphasis should be placed on nutritious drinks. This rule could be applied to other establishments such as youth and leisure centres. It should be noted that a study carried out in Québec schools in 2008-2009 reported that only one secondary school offered energy drinks, but coffee or tea was accessible to the students in more than one third of secondary schools.[19]

Educational and awareness-raising activities focusing specifically on energy drinks should primarily target parents and those who work with young people. Adults who are informed about the high caffeine and sugar content of energy drinks and about the appropriate use of these products might be less likely to offer this type of drink in a sports-related context or on other occasions. They would also be more inclined to pay attention to the energy-drink consumption habits of young people around them and more able to identify whether the consumption patterns of the latter may have negative effects.

The contents of this document are based on the report entitled *Boissons énergisantes : risques liés à la consommation et perspectives de santé publique*,[1] which is available in electronic format (PDF) on the Institut national de santé publique du Québec Web site at http://www.inspq.qc.ca/pdf/publications/1167_BoissonsEnergisantes.pdf

Beware of undesirable effects

There are lessons to be learned from efforts to prevent drug addiction among young people. For example, messages that are normative, moralizing, or intended to induce fear, and action solely aimed at transmitting knowledge may fail to prevent the consumption of energy drinks.[20] Moreover, some forms of action may have unintended undesirable effects.[21] For example, actions taken on energy drinks that target primary school students at large could raise awareness of, and unwittingly promote these products. Statements that suggest that most young people consume energy drinks could make them seem harmless and an acceptable part of everyday life. Banning or demonizing the product could make some young people more curious about it and increase its appeal. Focusing on energy drinks could make young people perceive other beverages of high sugar or caffeine content as acceptable. Energy-drink-related action aimed at young people should be based on the recommendations for promoting healthy lifestyles.[17,20]

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