

By Carol Culhane

# CAFFEINE CULTURE

Should we be concerned about  
our overly caffeinated  
consumption habits?

The 1998, Manhattan-set movie “You’ve Got Mail” features Tom Hanks’ character Joe Fox sauntering up to a Starbucks café to order his favourite tall or long, while scorning the legal sale of “America’s most addictive substance.” The producer would later reveal that Hanks was granted poetic license to express one his strongest heartfelt opinions.

A scientific panel would find Tom Hanks both right and wrong. The pharmaceutical status of caffeine is defined by a drug standard, published by Health Canada. Categorized as a stimulant, alertness aid and diuretic in menstrual drugs, the authorized medical uses are familiar to most, and include the temporary restoration of mental alertness

and wakefulness when experiencing fatigue or drowsiness, and relief of temporary water gain, bloating and swelling associated with the premenstrual and menstrual periods. The standard issues several warnings, notably a daily frequency and maximum dosage that equates to 200 mL of coffee every four hours.

The addictive element of caffeine is the subject of scientific controversy. Substance abuse experts do acknowl-

edge the pharmacological activity of caffeine, yet regard its behavioural effects as typically minor. They accept any reference to the addictive nature of caffeine in only a colloquial sense, and note that some people are not affected by caffeine. More pointedly, these scientists and practitioners note that drug dependency is manifested as neglect of occupational and recreational activities in favour of drug-seeking activity. They maintain that this is not true of caffeine consumption, and conclude that caffeine should not be classified as an addictive drug.

Dependency aside, there are several adverse effects of caffeine consumption that are universally agreed upon. These include individual sensitivities at low doses, withdrawal symptoms following caffeine cessation, and health risks of caffeine overdose. These phenomena, and the proliferation of caffeine-containing beverages, have persuaded the EU to mandate the disclosure of caffeine in processed foods, and since July 2004, caffeine content must be declared on labels. Labels of beverages which do not naturally contain caffeine, yet which has had it added in excess of 150 mg/L, must declare the amount, and bear the message "high caffeine content" in the same field of vision as the brand name.

The fastest-growing source of caffeine worldwide, especially among teens and young adults, is energy drinks. More than 500 brands were launched globally in 2005, resulting in a 2006 global market value of US\$3.4 billion. The sector grew 75 per cent in the U.K. between 2000 and 2005, when sales topped 1 billion. The Red Bull brand launched in the U.S. in 1997 and has held onto approximately 50 per cent of the market as the category grew to exceed US\$650 million. Although the Canadian value of total energy drink sales is substantially less than the often-quoted 10 per cent of American sales benchmark, due to domestic regulatory forces, several brands are available in Canada, some marketed to children. As a result, both Health Canada and Toronto's Hospital for Sick Children released a safe use advisory last summer, focusing

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The fastest-growing source of caffeine worldwide, especially among teens and young adults, is energy drinks.

on children's consumption of what is not a soft drink, but rather a potent stimulant.

These beverages promise to deliver not only quick energy and more physical endurance, but also shorter reaction times, increased concentration and improved mental alertness. A scientific review of several brands revealed that the only constituent that has any ergogenic (energy-enhancing) effect is the caffeine, the source of which can vary. Sometimes it is the caffeine extracted from coffee beans in the process of de-caffeination. Many energy beverages con-

tain guarana, a source of caffeine derived from the seeds of this South American shrub. Guarana drinks – which have a particular herbal taste profile – are the Brazilian equivalent to cola beverages. Guarana is the most concentrated source of caffeine in the world, having two to three times the caffeine content of coffee. The chemical names guaranine and caffeine are used interchangeably in some scientific circles, and they share an identical chemical and molecular structure. During the heyday of dietary supplements in the mid-'90s, guarana was frequently marketed as a caffeine-free

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stimulant, until scientific and regulatory forces proved otherwise. Because the caffeine content of guarana is not added, it need not be declared on the ingredient list in the U.S. and Canada, although the caffeine content can be quite high.

Launched in 1997 in the U.S., the Red Bull brand was prohibited for sale in Canada until a Natural Health Product Number (NPN) was issued by Health Canada in 2004. This resulted in on-label warning statements regarding maximum daily intake, consumption with alcohol, use by children, pregnant and/or lactating women, and individuals sensitive to caffeine. Red Bull is banned from some EU member countries, according to some reports, because of its caffeine content. Yet the caffeine in this market leader measures at 9.6 mg/oz, comparable to that of the average 250-mL cup of coffee. By comparison, a U.S. competitive brand and wannabe leader – Cocaine (now to be rebranded as Censored, after U.S. Food and Drug Administration scrutiny) – claims to be “350 per cent stronger than Red Bull,” with a caffeine content of 33 mg/oz.

The other dominant ingredient in Red Bull is taurine. An amino acid found in a wide variety of foods, taurine is particularly abundant in oysters, mussels, ox bile and human breast milk. Purportedly, the taurine in Red Bull was originally extracted from the bile of red bulls in Thailand, the home of the now internally famous beverage. While natural taurine, extracted from ox bile, is still in use today, most taurine is synthetic and used as a flavouring agent. In 2004, a FAO/UN safety committee deemed taurine safe at levels of intake consistent with use as a flavouring agent. A U.S.-based committee reached the same conclusion, establishing an upper limit of 28.5 ppm (parts per million.) Red Bull has 1,000 mg per 250-mL canister, equivalent to a concentration of 4.08 ppm, significantly below the upper tolerable limit.

While supplementary intake of taurine is implicated in a wide variety of physiological phenomena, and con-

sumed in Asia to mitigate the side effects of excess alcohol consumption, scientific substantiation of these claims is scant. On its own, and within limits, this amino acid appears to be safe. It is the alleged synergistic effect of this caffeinated, amino acid cocktail that functions as a market barrier in several countries. Due to its taurine content, sale of Red Bull as a soft drink is prohibited in Denmark,

Norway, Uruguay and Iceland, where it is regulated as a drug, and consumers are advised to seek medical advice before consumption. Only energy drinks without taurine are sold in France. [EC]

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