Health Canada Santé Canada

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Caffeine

Updated

March 2010

IT'S YOUR HEALTH

Caffeine

The Issue

Caffeine in its natural and added forms is found in a growing list of products including coffee, tea, cola beverages, new "energy" drinks, chocolate and even some medicines. The increasing presence of caffeine in our lives raises the question of how much is too much for the average consumer.

Health Canada's recommendations on caffeine intake for women of child-bearing age and children were lowered in 2003 based on new research. For the rest of the general population of healthy adults, the long-standing advice still applies of no more than 400 mg of caffeine per day, the equivalent of about three 8-oz (237 ml) cups of brewed coffee.

Background

Caffeine is a natural ingredient found in the leaves, seeds or fruit of a number of plants, including coffee, tea, cocoa, kola, guarana and yerba maté. It is also manufactured and used as a food additive in some carbonated drinks, and as an ingredient in certain drug products, such as cold and headache remedies.

Canadian adults get an estimated 60% of their caffeine from coffee and about 30% from tea. The remaining 10% comes from cola beverages, chocolate products and medicines.

For children aged one to five, about 55% comes from cola drinks, about 30% from tea, and about 14% from chocolate. The rest comes from other sources, including medicines.

The Health Effects of Caffeine

It is difficult to link precise intake levels of caffeine to specific health effects because tolerance to caffeine differs widely from person to person. For healthy adults, a small amount of caffeine may have positive effects, such as increased alertness or ability to

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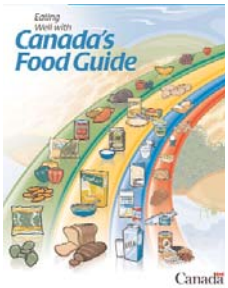
concentrate. However, some people are more sensitive to caffeine. For them, a small amount could cause insomnia, headaches, irritability and nervousness.

There have been many studies over the years dealing with caffeine and human health. These studies have looked at the potential adverse effects of caffeine in such areas as:

- general toxicity (e.g., muscle tremors, nausea, irritability)
- cardiovascular effects (e.g., heart rate, cholesterol, blood pressure)
- effects on calcium balance and bone health (e.g., bone density, risk of fractures)
- behavioural effects in both adults and children (e.g., anxiety, mood changes, attentiveness)
- potential links to cancer
- effects on reproduction (e.g., male and female fertility, birth weight)

Health Canada scientists recently reviewed these studies and found that:

- The general population of healthy adults is not at risk for potential adverse effects from caffeine if they limit their caffeine intake to 400 mg per day.
- People who get an adequate daily amount of calcium have greater protection against the possible adverse effects of caffeine on bone health. For most people, choosing foods according to Canada's Food Guide to Healthy Eating can provide the calcium needed for good health.



- Compared to the general adult population, children are at increased risk for possible behavioural effects from caffeine.
- Women of childbearing age are at increased risk of possible reproductive effects.

These conclusions prompted Health Canada to establish new recommendations on maximum daily caffeine intakes for the groups that may be at higher risk.

Health Canada's Recommendations

For children age 12 and under, Health Canada recommends a maximum daily caffeine intake of no more than 2.5 milligrams per kilogram of body weight. Based on average body weights of children, this means a daily caffeine intake of no more than:

- 45 mg for children aged 4 - 6
- 62.5 mg for children aged 7 - 9
- 85 mg for children aged 10 - 12

Those recommended maximums are equivalent to about one to two 12-oz (355 ml) cans of cola a day.

Health Canada has not developed definitive advice for adolescents 13 and older because of insufficient data. Nonetheless, Health Canada suggests that daily caffeine intake for this age group be no more than 2.5 mg/kg body weight. This is because the maximum adult caffeine dose may not be appropriate for light weight adolescents or for younger adolescents who are still growing.

The daily dose of 2.5 mg/kg body weight would not cause adverse health effects in the majority of adolescent caffeine consumers. This is a conservative suggestion since older and heavier weight adolescents may be able to consume adult doses of caffeine without suffering adverse effects.

For women of childbearing age, the recommendation is a maximum daily caffeine intake of no more than 300 mg, or a little over two 8-oz (237 ml) cups of coffee.

For the rest of the general population of healthy adults, Health Canada advises a daily intake of no more than 400 mg.

Minimizing Your Risk

You can estimate your daily caffeine intake to see if it falls within Health Canada's recommended guidelines. To do this, keep track of what you and your children consume, and refer to Health Canada's Fact Sheet, Caffeine in Food. It has a section that lists the amount of caffeine in comparable servings of many products used by Canadians.

To stay within the recommended limit, a pregnant woman could drink a little more than two 8-oz cups of coffee a day, as long as she did not take any other products that have caffeine in them. It is important to realize, however, that many coffee mugs are larger than 8 oz. Also, takeout coffees can be as large as 16 oz (474 ml) or 20 oz (592 ml). Just one 20-oz coffee would contain more caffeine than the daily limit suggested for pregnant women.

An average 8-oz (237 ml) serving of blended tea has 43 mg of caffeine, while the same size serving of green

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tea contains 30 mg of caffeine. A 12-oz (355 ml) can of regular cola has between 36–46 mg of caffeine. Using Health Canada's recommendations, children aged 4 - 6 could drink either one 8-oz serving of blended tea or one 12-oz can of regular cola a day, as long they do not eat or drink other products containing caffeine that day. However, drinks such as colas should be limited, especially in young children, because of their caffeine content but also because they might displace nutritious foods from the four food groups.

A 1-oz (28-gram) portion of a milk chocolate candy bar has about 7 mg of caffeine. The caffeine content of a 1-oz portion of a dark chocolate candy bar would be closer to 19 mg.

Some of the "energy drinks" that are now on the market contain about as much caffeine per serving as an 8-oz. cup of brewed coffee. Some, however, have a higher caffeine content. You should also be aware that some of the caffeine in energy drinks may come from herbs, such as guarana and yerba maté. The label on these energy drinks would list the herbs as ingredients, but the caffeine in the herbs may not be listed as a separate ingredient. By law, caffeine does not have to be listed on labels unless it has been added to the product separately as a pure substance.

Remember that over-the-counter drug products may contain caffeine. Read product labels. Be sure to count the caffeine in drug products when you estimate your daily intake. Some of these products, intended for occasional use only, may contain as much as 1000 mg of caffeine in a daily dose.

Check with your doctor or pharmacist to see if any of your prescriptions contain caffeine. You should also ask if there is a potential for caffeine to interact with any of your medications.

If you have questions about the caffeine content of any product, contact the manufacturer.

Health Canada's Role

Health Canada's scientists continue to review new research findings to ensure that recommended daily caffeine intake levels are based on the results of the best scientific evidence available. In addition, Health Canada takes an active role in providing information about the potential health effects of caffeine to help Canadians make healthy food and beverage choices.

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Need More Info?

For more information, contact:

- Health Canada, Natural Health Products Directorate
  web section: www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hpfb-dgpsa/nhpd-dpsn/index-eng.php
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  or
- Health Canada, Chemical Health Hazard Assessment Division
  web section:
  www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hpfb-dgpsa/fd-da/bcs-bsc/index-eng.php#chhad
  Sir Frederick Banting Research Centre, Tunney's Pasture
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- For information about Health Canada's Food Program, visit
  www.hc-sc.gc.ca/food-aliment/e_index.html
  or send an e-mail to
  food-aliment@hc-sc.gc.ca
- For more information on caffeine, please visit Health Canada's web page Caffeine in Food at:
  www.hc-sc.gc.ca /fn-an/securit/addit/caf/food-caf-aliments-eng.php
- For a copy of Canada's Food Guide to Healthy Eating, visit:
  www.healthcanada.gc.ca/foodguide
  or call 1-800-O-Canada
  (1-800-622-6232, toll-free in Canada).
- Also, see the It's Your Health article on the Safe Use of Energy Drinks at:
  www.hc-sc.gc.ca/iyh-vsv/prod/energy-energie_e.html
- For additional articles on health and safety issues go to the It's Your Health web section at:
  www.healthcanada.gc.ca/iyh
  You can also call toll free at
  1-866-225-0709
  or TTY at 1-800-267-1245*

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