

The Effects of Municipal Water Fluoridation
by author Melissa Keith



Last year Health Canada released *Fluoride in Drinking Water*, a document for public inspection and comment, prepared by the Federal-Provincial-Territorial Committee on Drinking Water.

A panel of six experts, four of them dentists, investigated fluoride exposure data with the intent of “revising the current drinking-water guideline” for Canada, while explicitly stating that their objective was not to dictate municipal fluoridation practices.

Fluoridated water is a tough mouthful to swallow for the increasing number of Canadians questioning its impact on their bodies and the environment. Critics have questioned the lengthy report on multiple fronts, including failure to rigorously assess the role of fluoride in a globally pervasive health condition—thyroid disease.

Is your water fluoridated?	Province	% of population drinking fluoridated water
<p>In Canada, fluoride decisions are made regionally, in collaboration with the appropriate province or territory. Around 40 percent of Canadians currently drink fluoridated water, according to Health Canada. Check with your local municipality to find out if fluoride is being added to your water.</p>	Ontario	75.9%
	Alberta	74.7%
<p>Here's how water is fluoridated provincially, according to the most recent data available.</p>	Manitoba	69.9%
	Nova Scotia	56.8%
	Northwest Territories	56.4%
	Saskatchewan	36.8%
	New Brunswick	25.9%
	Prince Edward Island	23.7%
	Quebec	6.4%
	British Columbia	3.7%
	Newfoundland/Labrador	1.5%
	Nunavut	0.0%
Yukon	0.0%	

The Health Canada study did not seriously consider thyroid health when it put forward a maximum acceptable concentration (MAC) level of 1.5 mg of fluoride per litre of tap water, according to a response from Carole Clinch, research coordinator with People for Safe Drinking Water.

Why focus on thyroid function?

For starters, the thyroid gland is a repository where fluoride accumulates throughout one's lifetime.

Fluoride is a very small, chemically reactive particle that tends to displace other minerals in certain storage sites within the body. For this reason, it has been used in osteoporosis treatment—fluoride reinforces bone where calcium has been depleted—and dentistry to replace minerals lost from the teeth.

It should be remembered that the World Health Organization (WHO) treats fluoride more like a drug than an essential nutrient. Fluoridation of a municipal water supply is, in effect, administration of a substance that can

Hypothyroidism—what is it?

Otherwise known as underactive thyroid, hypothyroidism occurs when the thyroid gland fails to produce sufficient amounts of the thyroid hormones T4 and T3. The symptoms include

- **poor appetite**
- **intolerance to cold**
- **dry, coarse skin**
- **brittle hair**
- **croaky, hoarse voice**
- **tiredness**
- **constipation**
- **muscle weakness**

create “chemical hazards with clearly defined health effects” for all users of that water, according to WHO.

Unless reverse osmosis, distillation, or activated alumina systems are used, you are not able to remove the fluoride. As Paul Connett, PhD, professor emeritus of environmental chemistry at St. Lawrence University in Canton, New York, declares in his critique of Health Canada’s proposed MAC level for fluoride, “Once fluoride has been added to the water it is no longer possible to control the dose that people get. There will be literally millions of people who will get a higher dose of fluoride drinking water at 0.8 ppm [parts per million] than people would get drinking water at 1.5 ppm.”

How to track thyroid health

Thyroid health can be evaluated through the following tests:

- **TSH (thyroid stimulating hormone) and T3/T4 levels**
- **thyroid autoantibodies—present in both mild and severe cases of autoimmune thyroiditis (Hashimoto’s disease)—antithyroid peroxidase and antithyroglobulin antibodies**

How fluoride affects the thyroid

Evidence that fluoride accumulates in the thyroid dates back to the early 1900s, where its presence in the glandular tissue first came to light because of obvious goitres (swollen, enlarged thyroid glands).

In the thyroid gland, fluoride can prevent iodine from playing its proper role in synthesizing two hormones critical for normal metabolic activity throughout the body—T3 (triiodothyronine) and T4 (thyroxine).

The names of these hormones allude to the number of iodide particles the thyroid needs to build them. When fluoride—a more reactive substance from the same chemical family as iodine (the halides)—enters the picture, it can interfere with the T3 and T4 manufacture by blocking iodide receptors.

In the words of Carole Clinch, “The combination of iodine/iodide deficiency and ubiquitous and uncontrolled doses of [fluoride] potentially affects the health and function of iodine-sensitive tissues such as the ... thyroid gland.”

Fluoride isn’t interchangeable with iodide (the form of iodine the thyroid uses); hypothyroidism is sometimes the body’s final statement on the substitution of one for the other. Gradual accumulation through prolonged low-dose exposure can result in the onset of symptoms not always initially recognized for what they represent: the thyroid’s struggle, and eventual failure, to do its job without the correct materials.

Fighting fluoridation

Thyroid illness is one of the reasons Dana Landry launched a petition last year to convince the Halifax Water Commission to end local fluoridation. Many of this Halifax-based registered holistic nutritionist’s clients suffer from varying degrees of thyroid underactivity.

She admits it’s difficult to raise public awareness that fluoridation even happens in Halifax: “I want people to be aware of what’s going on. We’re not drinking pure water. Because they’re pouring fluoride in the water system, we have no choice—I can’t get it out of my water. If I turn on my tap, it’s coming out, and I can’t get it out with a filter.”

Perfect teeth—at what cost?

A narrow focus on flouridation for perfect teeth has spawned a rise in thyroid problems. According to the Thyroid Foundation of Canada website:

“Recent studies indicate that 30 percent—over 10 million people—suffer from a thyroid condition of one type or another! That means one in every three Canadians has a thyroid disorder.”

In our appearance-obsessed culture, fears of unattractive teeth trump what should be a more pressing worry—the full-body consequences of hypothyroidism. Fluoride is touted as the secret to a perfect smile, but it’s hard to smile when you feel cold all the time, you’re losing your hair, you can’t lose excess body fat even with dieting and exercise, and severe fatigue interferes with daily activities.

Fluoride’s use in medical applications

Health Canada’s fluoride panel barely mentions the thyroid gland in its 82-page document but does cite one 1998 study of fluoride-exposed mice. That study concluded a low iodine/high fluoride regimen led initially to “some [thyroid] stimulatory effect,” but after 150 days “the effects of fluoride reversed compared with those at 100 days.”

It shouldn't come as any surprise: fluoride has a history of medical applications as a thyroid-suppressant for conditions such as Grave's disease, a form of thyroid overactivity.

Penny Ormsbee, a registered holistic nutritional consultant and educator in Halifax with a special interest in hypothyroidism, elaborates: "In the 1950s fluoride was used to slow down an overactive thyroid gland."

Hypothyroidism increasing

"One reason for the increasing rate of hypothyroidism in this country may be due to fluoride added to city drinking water," says Ormsbee. "Eliminating bromine [a flame-retardant chemical used in some foods] and fluoride is necessary to regain optimal thyroid function."

A 2006 Quebec study suggests that specific demographic groups are particularly susceptible to excessive fluoride absorption, even when consuming the low dosages recommended for oral health.

Women, seniors, and low-income populations show the highest rates of hypothyroidism, which may be attributable to deficiencies in thyroid-protective nutrients plus continued exposure to many sources of fluoride, including tap water.

An unexpected cause (or perhaps accelerant) of full-fledged hypothyroidism is the premature use of prescription thyroid medications such as Synthroid (levothyroxine, a hormone replacement) by patients with subclinical hypothyroidism.

The low priority accorded thyroid health in relation to fluoride exposure isn't unique to Health Canada's document. "The endocrine system, apart from reproductive aspects, was not considered in detail in recent major reviews of the health effects of fluoride" as recently as 2006, according to the US-based Board on Environmental Studies and Toxicology's book *Fluoride in Drinking Water: A Review of the EPA's Standards*.

<p>What can you do?</p> <p>What can Canadians concerned about fluoridation and thyroid health do? Lightening your total "toxic load" is an excellent start.</p> <ul style="list-style-type: none"> ● Avoid fluoridated water and high-fluoride foods. ● Eliminate chemicals such as pesticides, food additives, and pollution as much as possible. ● Invest in an activated alumina system or a distillation filter that is designed to remove fluoride from water. ● Get adequate (but not excessive) amounts of essential minerals calcium, iodine, and selenium. ● Get involved in local programs to end fluoridation of municipal water supplies, such as Dana Landry's online petition to end fluoridation in Halifax at ipetitions.com/petition/halifaxwater. 	<p>Negligible benefit of fluoridation</p> <p>Canada's explosion of hypothyroidism is occurring alongside such low rates of dental decay that University of Toronto professor and head of preventive dentistry, Dr. Hardy Limeback, remarks, "The benefit of water fluoridation is not a clinically relevant one."</p> <p>Negligible dental benefits simply don't outweigh the risks of hypothyroidism, cancers, and other illnesses associated with fluoride intake, according to Limeback, who famously retracted his professional endorsement of fluoride as a benign cavity-prevention tool in April 1999.</p> <p>Fluoride in food</p> <p>Abundant fluoride in modern diets and water is compounded by low iodine intake, establishing an unbalanced situation. The WHO has highlighted data showing that two Canadian staples are also rich sources of unwanted dietary fluoride: there is approximately 4.97 mg/L in regular black tea sold in Canadian stores and 0.21 to 4.57 mg/L in various kinds of commonly available fish.</p>
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Prepared foods such as frozen dinners and packaged juices can contain fluoridated water, adding to one's fluoride burden. "Daily exposure to fluoride depends mainly on the geographical area," states the WHO, before adding, "In most circumstances, food seems to be the primary source of fluoride intake, with lesser contributions from drinking water and toothpaste."

Landry sees folly in fluoridating municipal water, considering how fluoride has infiltrated our environment (from

pollution and natural sources), our food and toiletries, and even our bodies. “Even if it did do something for your teeth—and I’m not sure it does—is it worth the other problems it will wreak upon your body?” she asks.

What’s next

The WHO has called for “research to better characterize total fluoride exposure, exposure-health relationships, and the various factors that modify and influence these.”

Until that research involving human trials comes about, Landry will lobby to remove fluoride from municipal water, because Canadians can’t always remove themselves from municipal water, even when they don’t want to ingest controversial chemicals with every glass.

Other resources

- *Fluoride in Drinking Water*, 2009 Health Canada consultation document, and the panel’s upcoming decision is available at hc-sc.gc.ca/ewh-semt/consult/_2009/fluoride-fluorure/draft-ebauche-eng.php
- full critique from Paul Connett: *Response to the Health Canada (2009) Report on Fluoride in Drinking Water* at fluoridealert.org/re/connett.canada.11-11.09.pdf
- full critique from Carole Clinch: *Health Canada Review of Fluorides in Drinking Water Is Inaccurate — Unacceptable* at fluoridealert.org/re/canada.report.response.clinch.pdf

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