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Features

Electromagnetic pollution - Health hazards of high-frequency radiation

Michelle Hancock



Higher magnetic fields are associated with greater risk of childhood leukemia. Several countries have lowered EMF-exposure guidelines.

Electric pollution can interfere with the body's nocturnal healing schedule.

Tall, cellular antennas on school roofs will be a less common sight in Vancouver, BC, thanks to a groundbreaking decision by the Vancouver School Board (VSB).

The Board has banned new cellular antennas from school lands. "There is no conclusive evidence that the installation of cellular antennas on or adjacent to schools is safe," the motion read. It was passed by the Board on February 8, 2005, becoming the first of its kind in Canada.

This action reflects rising concern about electromagnetic fields (EMFs) - spaces influenced by electricity. If you plug in a lamp, for example, the cord has an energy field around it. Turn on that lamp and a magnetic field is produced as electricity moves through the cord.

EMFs are all around us

At a lamp's low electric frequency, these two fields can be measured separately. At higher frequencies, though, electric and magnetic fields combine to produce electromagnetic radiation. A lamp shuts off if you pull the plug, but television signals continue to radiate outward even after you've turned off the power.

Cellphone antennas emit such a high frequency radiation that the VSB has also voted against their installation on lands within 305 metres (1,000 feet) of Vancouver schools.

"We are electromagnetic beings," explains Milt Bowling, president of the Clean Energy Foundation and chair of the Health Action Network Society's EMF Task Force (hans.org). "That's why we're tested with electrocardiograms and electroencephalograms. Anything with an electromagnetic field will interact with us. Where we get into problems is when our bodies face man-made EMFs. Our bodies can't rely on evolutionary experience to deal with them properly."

Links to cancer

"Research shows higher magnetic fields are associated with greater risk of [childhood] leukemia," says Dr. Madga Havas, an environmental scientist at Trent University, Ontario. "Other studies report a slight increase in female breast

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cancer; a large increase in male breast cancer for occupational exposure; an increase in brain tumours above 10 milli-gauss (mG, the unit for measuring strength of a magnetic field); an increased incidence of miscarriages above 16 mG; and an increased incidence of Lou Gehrig's disease [amyotrophic lateral sclerosis].”

At the Karolinska Institute in Sweden, Professor Olle Johansson is studying electromagnetic hypersensitivity, a recognized condition affecting three percent of Swedes. Symptoms include skin problems, fatigue, and headaches.

What levels are safe?

As the damning evidence continues to mount, several countries have lowered EMF exposure guidelines. Switzerland and Sweden say children's exposure should be less than three mG; for adults, less than 10 mG. Italy and Israel have also reduced their exposure guidelines, but Canada's, says Dr. Havas, “are among the worst in the world at 833 mG for public exposure and 4,167 for occupational exposure.”

Plus, these exposure levels in Health Canada's Safety Code 6 are based on thermal effects only. In other words, if a radiating device doesn't heat body tissue temperature by one degree centigrade in six minutes, then there's no (perceived) problem.

But epidemiological evidence involving radiation levels too low to cause heating suggests otherwise. Health effects include those listed above, in addition to changes in sleep patterns, decreased memory, retarded learning, and increased blood pressure.

Health Canada, however, maintains that our guidelines are fine. The Federal-Provincial-Territorial Radiation Protection Committee (FPTRPC) wrote in a February 2005 report, “Since there is no conclusive evidence that exposure to EMFs at levels normally found in Canadian living and working environments is harmful, FPTRPC is of the opinion that moderate measures and participation in the process of acquiring new knowledge are sufficient.”

Citizens take action

Despite - or perhaps due to - government's policy procrastination, citizens are taking self-protective measures. In Abbotsford BC, a group headed by Milt Bowling continues to intervene at hearings protesting Sumas Energy 2, a power-line project that would divert electric power from Washington State through residential areas in Canada, and back down to California.

Thanks to concerned parents, in 2002 an elementary school in Edmonton, Alberta, was constructed away from an existing power line to reduce student EMF exposure. This year, the extended efforts of Stop Transmission Lines Over People, a York, Ontario-based group, prevented high-voltage power lines from being built in a residential area.



On April 7, 2005, the International Association of Firefighters (IAFF) called for a moratorium on placing further cell towers and antennas on fire hall property. “Critical questions concerning the health effects and safety of radio frequency microwave radiation remain,” says IAFF general president Harold Schaitberger. “We want answers, not the biased opinions of cellphone industry groups.”

Filtering out pollution

Unfortunately, financing to study the health effects of EMFs doesn't grow on trees, a fact to which Dr. Havas can attest as a nonfunded scientist. Nevertheless, she conducted a study at Willow Wood School in the Toronto area involving the installation of filters that neutralize electrical pollution.

After the filters were installed, teachers reported a 55-percent improvement in student energy and well-being. Students had fewer body aches and headaches, and their behaviour and attentiveness improved. Overall, teacher well-being improved, too; they were less frustrated, less tired, and less irritable. Currently, Dr. Havas is doing a larger study in which some homes are installed with fake filters in order to check for placebo effect.

Additional research with multiple sclerosis (MS) patients and filters has yielded impressive results. Brad Blumbergs, 28, was diagnosed with MS at 25. He required assistance when walking, and he'd lost 30 pounds he couldn't afford to lose. Three days after filters were installed in his house, he was walking unassisted. Two weeks later, he was shovelling snow.

"I've been able to regain some pounds," he says, "and am feeling good. It's not a cure, but it's amazing how these filters have allowed me to retire my cane for now."

About 20 filters are needed to de-energize a home, but a few precautions can also help reduce household exposure. Buy or rent a gauss meter to measure EM levels (check the phone book under electronic shops) or hire an electromagnetic consultant to obtain readings and determine problematic areas.

Keep your distance

"Be aware of your environment," encourages Bowling, "particularly where you sleep. Electric pollution can interfere with the body's nocturnal healing schedule. Don't have a clock radio by your head. Don't leave an electric blanket plugged in. Don't use a waterbed unless the temperature's warm enough not to need a heater. EMFs also drop off with distance, so keep back from appliances and electric ranges. Turn them off if you're not using them. Stay at arm's length from your computer."

Meanwhile, research continues. Citizens push forward, and governments respond. As our electromagnetic age progresses, so, we hope, will our knowledge and solutions.



The story on cellphones

Fifty-four per cent of Canadian households have at least one cellphone. Are we trading convenience for safety?

Reports of possible trouble began in 1994, when Henry Lai and Narendra Singh

from the University of Washington found that two hours of radiation at levels considered safe by government damaged rat-brain DNA.

Formerly hired by the Cellular Telecommunications and Internet Association to study health effects of cellphones, Dr. George Carlo co-authored *Cell Phones: Invisible Hazards in a Wireless Age* (Carroll and Graf, 2001). His findings showed increased risk of brain cancer deaths and tumour development. Frequent cellphone users also showed genetic damage.

The United Kingdom's National Radiological Protection Board urges that children should only use cellphones in emergency situations. Because their immune systems are still developing, kids have greater absorption, as well as a longer lifetime exposure.

Here are other practical suggestions to reduce radiation exposure:

- If you have a choice, use a landline (wired, not cordless).
- Limit the length of your calls. As little as a two-minute call results in an altered electrical brain pattern up to an hour later.
- Use an ear bud.
- Make sure the wire isn't near the antenna, and have at least one coil in the wire.
- Cellphone radiation has an affinity to metal and water, so metal-framed glasses, earrings, and wet hair will attract it.
- When your phone is on, it automatically transmits at high power to check in to the network every minute or two. So, don't wear it on your belt or carry it in a breast or pants pocket.
- When placing a call, the phone makes the connection at high power, so count to five before putting it to your ear, and don't press it against your head.
- Try to use your phone where reception is good. Power cranks up to compensate for a weak signal.
- Don't talk on a cell while driving. This applies to both hand-held and hands-free devices. Radiation disrupts the electrical patterns of your brain.

(Safety tips provided by Milt Bowling cleanenergycanada.com.)

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