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The disturbing truth about cellphones

By Martin Mittelstaedt
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We know they give off radiation, but most of us still press them to our heads without thinking of the risks.

Is that cellphone at your ear giving you cancer? U.S. public-health advocate and epidemiologist Devra Davis takes a close look at the science of cellphones in her new book, *Disconnect*, and discovers that while researchers haven't yet found a definitive answer, there are chilling clues that these ubiquitous devices are far from benign.

Tumours on the rise

Several studies, including an exhaustive review released this year by the World Health Organization's cancer-research agency, find that people who have used cellphones for half an hour a day for more than a decade have about twice the risk of glioma, a rare kind of brain tumour, on the side of their head where they hold the phone. Glioma is usually fatal. Dr. Davis says brain cancers typically take decades to develop, and the fact that they're being found after 10 years in cellphone users after relatively light exposure by today's usage standards is worrisome. "For such a risk to show up in cellphone users within 10 years given what we know about brain tumours, which is that they can have a latency of 40 years, is deeply, deeply disturbing," she said in an interview.

Your brain on microwaves

Cellphones operate on microwaves, sent and received by antennas on the back of the devices. Some people compare holding these phones to pressing tiny microwave ovens next to our heads. Nearly everyone is exposed to cellphone radiation: There are an estimated five billion subscriptions worldwide.

There is no doubt that more powerful types of radiation - think X-rays - cause cancer. But microwaves, known as non-ionizing radiation, were long thought to be benign because they weren't strong enough to bump electrons from atoms. Nonetheless, Dr. Davis writes that experiments indicate these waves do pack a biological punch. Rats exposed to just two hours of microwave radiation had broken strands of DNA, the damage known to occur in cancer. The rats also had brain-cell alterations, memory lapses and fluids leaking from their brains into their blood, indicating a breach of the blood-brain barrier.

Safe for whom?

Dr. Davis writes that cellphone-safety tests are based on the amount of radiation absorbed into the head of a man who is in the top 10 per cent of U.S. military recruits, a 200-pounder with an 11-pound brain standing at 6 feet, 2 inches. The standards were based on early analog phones used no more than six minutes at a time, not the digital models now in use. They were set to prevent the head from overheating. The tests don't account for the smaller head sizes of women and children.

Don't touch that phone

According to the fine print of the safety and product information brochure accompanying every cellphone, pressing the phone to your ear is a no-no, Dr. Davis writes. BlackBerry instructions, for example, couldn't be more explicit. The phones should be used in a hands-free operation if available and people should "keep the BlackBerry device at least 0.98 in. (25 mm) from your body (including the abdomen of pregnant women and the lower abdomen of teenagers) when the BlackBerry device is turned on and connected to the wireless network."

Safer cellphone use

- * Using headsets and wireless gadgets such as Bluetooth cuts the amount of radiation to the brain.
- * Store your cellphone in a backpack or purse. Or, if you must carry it mounted on your belt, turn the keypad to face your body because the antenna is on the back. Because radiation drops exponentially by distance from the antenna, holding devices away from the body cuts doses dramatically.
- * Don't sleep with your cellphone on next to the bed or under a pillow.

- * Pregnant women should keep the phones away from their abdomen.
- * Talk in an area with good reception. Poor reception increases the radiation dose because the phones must power up to send the signal.
- * Children should text instead of speaking on the phone, and limit use to emergency situations.

Tobacco, asbestos and cellphones

"Science on this complicated topic remains uncertain, for two reasons. First of all, science is truly complex and not easily understood by most of us. But a very large part of that uncertainty on this issue has been manufactured by those with deep pockets whose bottom line remains their primary focus. Many of those engaged in efforts to study cellphone radiation have ... made up their minds in advance. The fact that ready money has been there to support those who cast doubt on the dangers of radio-frequency radiation certainly plays some role in the perpetuation of their views, as it did with tobacco, asbestos, benzene, and hormone-replacement therapy." - from *Disconnect*

Out with the old science

"Cellphones have become as essential to modern life as cars and trucks and jet planes. We spend billions of dollars, euros, yen and won making vehicles safer for us to drive or fly in and checking to see if they are safe as used. We need to do the same things with cellphones. Rather than parroting assurances of safety based on old science, outmoded theories of physics, and bullied scientists, we need to invest in cellphones' safety as we do with other modern technologies.

"Of course, more research is needed. On that we are all agreed. But the need for research should not be allowed to become an excuse to carry on as though everything is fine, until we have incontrovertible proof that it is not." - from *Disconnect*

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