





“In both the Senate and House, Democrats were significantly smarter than Republicans.”
Jonathan Wai, Ph.D.

Experts **ing the Media**

How media technology contributes to the global ecological crisis.

by Richard Maxwell, Ph.D. and Toby Miller, Ph.D.

Do Cellphones Weaken Our Ability to Fight Disease?

Our brains evolved to keep us happy and healthy, then along came electronics.

Published on November 5, 2013 by Richard Maxwell, Ph.D. and Toby Miller, Ph.D. in Greening the Media

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Toward the end of the 2012 documentary, *Resonance—Beings of Frequency*, the narrator tells us that the cellphone industry has been asking the wrong question about cellphone-related cancers. Rather than examine how cellphones and communications towers cause cancer, the industry should ask how cellphones prevent the human body from curing the disease.¹

It's a pivotal moment in the film, coming after descriptions of numerous cases linking cell towers and phones to biological harm: cancer clusters in a small town, the collapse of bee colonies, the decline of migratory bird populations, and a rising number of people afflicted by electromagnetic hypersensitivity (a popular butt of jokes about crazies wearing aluminum hats).

The corporations that make and market cellphones know that a phone's radio frequency (RF) emissions can cause harm. They've studied the thermal effects of this radiation in laboratory experiments, testing phones on a dummy head, or Specific Anthropomorphic Mannequin (SAM), to measure where a phone can be safely held. They even post a warning to keep the phone at least 10 mm from our bodies (the width of a dime) in order to avoid dangerous levels of RF exposure. One problem is that such instructions can only be found after five steps into a phone's "legal" settings page. A much more troublesome aspect is that the SAM skull is modeled on soldiers' heads, which tend to be larger than most adult heads and, more importantly, much bigger and thicker than those of vulnerable children and teen cell users.²

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And as we noted here in July, these companies have no compunction about using a public relations scheme to "war-game the science" in order to spread doubt and confusion about the dangers of mobile communication. The trick involves discrediting researchers who report evidence of harm while backing scholarship that reports reassuring findings, a sham that worked with disastrous success for tobacco corporations for decades.³

Resonance suggests that mobile technologies are threatening the biophysical health of all organisms by disrupting biological processes that have evolved over millions of years. And here the film offers a brief lesson on evolutionary history.

Human brains and neurological systems are intimately related to naturally occurring electromagnetism. The billions of neurons in our brains use electricity to function and communicate, as do all living cells, DNA, genes, and the rest of the building blocks of life. Birds and bees navigate because the cryptochrome protein in their cells sense the Earth's natural electromagnetic field (EMF).⁴



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Disruption of this ability is said to underlie the disorders affecting these species.

In humans, cryptochromes help set biological clocks. They tell our bodies when it's dark and when to sleep, two important triggers for the pineal gland's production of the hormone melatonin, which has important antioxidant properties and forms part of our immunological system, potentially helping fight cancer.⁵ Research suggests that cell towers and phones, and all electronics for that matter, are disrupting this natural biophysical rhythm. Here's how *Resonance* explains it.

Naturally occurring EMF is generated by the electrical activity of lightning and moves around the planet in waves that bounce off the ionosphere. The frequency at which these waves move is measured in cycles per second, or Hertz (Hz)—10 cycles per second is 10 Hz. The Earth's shape and size keeps the variation of frequencies relatively stable within a range of 3 Hz to 60 Hz, with peaks of intensity at 7.8 Hz, 13.7 Hz, 19.6 Hz, 25.5 Hz, 31.4 Hz, 37.3Hz and 43.2 Hz.⁶

In our most relaxed, conscious state, our brain waves operate in a frequency range of 8 to 12 Hz—the so-called Alpha waves—roughly the same fundamental intensity as the Earth's EMF of 7.8 Hz. It can sound like new-age piffle, but our brains have evolved to resonate in very basic ways with the planet. And here's the main point: the advent of manufactured, artificial EMF radiation has altered our electromagnetic environment on a scale that is unprecedented in evolutionary history. The consequences of this intervention are only beginning to be understood by scientists.






Meanwhile, research into how these technologies affect biophysical nature is largely ignored or distorted by many corporations, governments, and academics. At least when the tobacco industries lied to us, we could point to a naturally-occurring control group of healthy non-smokers to call their hacking bluff. There is no control group in the case of artificial EMF exposure.

The World Health Organization's International Agency for Research on Cancer advised two years ago that the family of frequencies that includes cellphone emissions "is possibly carcinogenic to humans." The National Cancer Institute adds that whilst studies have not proven cellphones can cause cancer, additional research is needed because technologies are changing so quickly. And in August this year, the American Academy of Pediatrics called on the Federal Communications Commission and the Food and Drug Administration to revise EMF standards to account for different peoples' vulnerability to cancer from cell phones, notably pregnant women and children.⁷ Let's also not forget to question how these technologies might be disrupting our body's natural ability to heal itself.

It's time we paid attention to the physical assault on the electromagnetic environment we evolved within. Maybe a good night's rest, low-wattage entertainments, and a walk outdoors would do a world of good.

Notes.

1. <https://www.facebook.com/resonancebeingsoffrequency>
2. <http://consumers4safephones.com/fccs-cell-phone-testing-dummy-is-larger-than-97-of-all-cell-phone-users/>
3. <http://onlinemunity.alternet.org/personal-health/radiation-concerns-about-cellphones>
4. <http://www.ks.uiuc.edu/Research/cryptochrome/>

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