# Why cell phones may be more dangerous than we think

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After many years of increasingly erratic behavior, Alan Marks, of Lafayette, suddenly experienced a severe seizure in the middle of the night. His wife, Ellie, called 911 and Marks was rushed to the hospital, where tests revealed a golf-ball-size brain tumor that apparently was the cause of his personality changes.

The Markses had no doubt about what caused the tumor: It was located exactly where he had been pressing a cell phone to his head for almost two decades. In the two years since that diagnosis, the Markses have joined an international debate over the potential health risks surrounding the low levels of radiation emitted by cell phones. The couple have testified before the U.S. Congress, been interviewed on national television, and they were instrumental in persuading San Francisco to adopt a controversial ordinance that requires mobile phone retailers to display information about the radiation levels of each model.

"I wanted to share my story because I don't want others to suffer like we have," Ellie Marks said.

But how can they be sure the cell phone is to blame? I've had a growing interest in this subject in recent months for personal and professional reasons. But what I've found is that nobody knows for sure whether cell phones are a health hazard. And that has surprised me and made me nervous.

Several players at the heart of this debate converged on San Francisco last week. CTIA-The Wireless Association had its annual trade show, which it promised would be the last in the city because of the new disclosure law. Marks organized several protests outside the event. And noted epidemiologist Devra Davis, a visiting professor at Harvard University, arrived for several speaking engagements about her recently published book, "Disconnect: The Truth About Cell Phone Radiation, What the Industry Has Done to Hide It, and How To Protect Your Family."

"When I first heard that there could be problems with cell phones, I didn't believe it," Davis said. "I wrote the book because I was stunned to find out I was wrong to assume that these things had to be safe."

For many years it was believed the low levels of radiation generated by cell phones and towers had no effect on human biology. Now a small but growing number of scientists and health activists are challenging those findings.

Davis' book cites studies that point to possible links between cell phones and brain tumors and lower sperm counts. Much of this evidence has been attacked from other scientific corners as "junk science" from a lunatic fringe. Having read the book and listened to arguments on both sides, I found myself wondering how the average consumer, who doesn't have the science background to sort through the details of studies, is supposed to come to an informed conclusion.

My interest in this topic began earlier this year when the owner of a building across the street from our kids' school in North Oakland signed a contract with Verizon Wireless to install a handful of cell phone towers on his roof. The prospect of these radiation-emitting devices so close to the school alarmed a number of parents at the school, including my wife, who organized an effort to stop them.

It turns out the 1996 Telecommunications Act contains a provision that bars local governments from considering health effects when deciding whether to grant permits for cell towers. They can only consider aesthetic issues -- that is, whether the towers are too ugly for the neighborhood.

Such a restriction seemed heavy-handed and got me wondering: Why was anyone trying to eliminate debates over health effects? Surely if there was a possible health issue with cell phones or towers, someone would have told us, right?

In fact, they have told us. Every cell phone comes with a standard disclosure about the effects of radiation. Like most people, I had never read the safety and product booklet that came with my BlackBerry Curve 8310. But when I did this summer, I found a section where it talks about the amount of radiation the phone emits and then warns me to do the following:

"Keep the device at least 0.98 inches (25 mm) away from your body when the BlackBerry device is turned on and connected to a wireless network."

If cell phones are safe, why do I need to hold it away from my body?

"Cell phones are small microwave radios," Davis said. "And you don't want to hold a small microwave radio next to your head."

I asked John Walls, a CTIA spokesman, why phones include this warning when there is no government or industrywide mandate to do so.

"It's been the legal opinions of the various companies that they should supply that warning," he said.

Hardly reassuring. But what's really interesting is that the cell phone industry doesn't actually claim cell phones are safe. It claims that other people do. It points to third-party research by other groups such as the Federal Communications Commission, scientific standards bodies and organizations such as the World Health Organization.

"We don't have concerns because that is what science has told us about our products," Walls said. "If anyone knows any different they should let the agencies and public health organizations know. We are not scientists and we defer to their work. The overwhelming consensus is that there is no evidence that people should have cause for concern."

But that's not entirely true. In May, the World Health Organization released a 10-year study dubbed "Interphone" that examined the possibility of a link between brain tumors and cell phones. According to Joachim Schüz, of the International Agency for Research on Cancer, the principal scientist on the Interphone study, the results were inconclusive. But the study noted:

"There are some indications of an increased risk of glioma (brain tumors) for those who reported the highest 10 percent of cumulative hours of cell phone use."

"The results are really not as clear as we hoped when we started the study," Schüz said. "Further monitoring of the long-term use of mobile phones is certainly necessary."

The FCC also delivers mixed signals on the subject. An FCC representative pointed me to the portion of the agency's website that addresses the issue:

"No scientific evidence establishes a causal link between wireless device use and cancer or other illnesses. Those evaluating the potential risks of using wireless devices agree that more and longer-term studies should explore whether there is a better basis for RF (radio frequency) safety standards than is currently used."

Given the lack of clarity, what are we to do?

The FCC lists some precautions, though it wants to be clear that it "does not endorse the need for these practices" because there's no danger. Got it? But just in case, use a speakerphone or headset, increase the distance between the wireless device and your body, and consider texting rather than talking (unless you're driving!).

When I talked to Ellie Marks last week, she was on her cell phone getting ready to lead her first protest march to the CTIA convention. She said her husband has been doing well in recent months, but they expect the tumor to come back at some point. I noted that she hadn't ditched her own wireless phone in the wake of all she had learned.

"I don't believe in abandoning this technology," Marks said. "I want the industry to make the equipment safer and be honest about the risks."

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