

# Despite Clear Evidence of Harm

## Mobile Phone Industry Fights to Keep You Ignorant of the Risks

### Story at-a-glance

- The International Agency for Research on Cancer classified cellphones as a Group 2B “possible carcinogen” based on the evidence available in 2011. Since then, the evidence of harm has grown significantly
- This year, two major studies have been published showing cellphone radiation causes DNA damage and increases your risk of cancer and other health problems
- Researchers are urging the IARC to upgrade its carcinogenicity classification for cellphones from a “possible” to a “probable” human carcinogen based on newer evidence
- For the past 25 years, the telecommunications industry has led an orchestrated PR campaign aimed at misleading consumers, journalists and policymakers about the science of cellphone radiation
- Of 326 cellphone safety studies, 56 percent found a biological effect from cellphone radiation while 44 percent did not. When funding was analyzed, it was discovered that 67 percent of the independently funded studies found a biological effect, compared to just 28 percent of the industry-funded studies. This funding bias creates a perceived lack of scientific consensus

### By Dr. Mercola

The International Agency for Research on Cancer (IARC) classified cellphones as a Group 2B "possible carcinogen"<sup>1</sup> based on the evidence available in 2011. Since then, the evidence of harm has grown significantly. Science delivered a scathing blow to the cellphone industry this year, with three major studies supporting suspicions that cellphone radiation increases your risk of cancer<sup>2,3</sup> and other health problems.

Still, public doubt seems to linger. Two articles written by Mark Hertsgaard and Mark Dowie — one in *The Nation*,<sup>4</sup> the other in *The Guardian*<sup>5</sup> — highlight how such doubts are manufactured by the telecommunications industry which, barring public outcry, does not appear to have any interest in making their products safer.

### Clear Evidence Cellphone Radiation Promotes Cancer

In February 2018, the findings of two government-funded lifetime exposure studies<sup>6</sup> (one on mice, the other on rats) were published. The animals in these studies were exposed to cellphone radiation for nine hours a day for two years, which is the normal, full life span of both mice and rats.

This \$25 million research — conducted by the National Toxicology Program (NTP), an interagency research program currently under the auspices of the National Institute of Environmental Health Sciences — reveals a number of health concerns, including the following:

- Exposed male rats were more likely to develop heart tumors (malignant schwannomas) than unexposed ones. These heart tumors are very similar to acoustic neuromas found in humans, a benign type of tumor that previous studies have linked to cellphone use
- Female rats and newborns exposed to high levels of radiation during pregnancy and lactation were more likely to have low body weight
- DNA damage and damage to heart tissue were observed in exposed male and female rats, but not mice

- Brain, prostate, liver and pancreatic tumors were found in both rats and mice exposed to cellphone radiation over a lifetime

Remarkably, the NTP chose to downplay the results, saying there's no real cause for concern. Not only does this nonchalant dismissal contradict the urgent warnings issued by NTP researchers just two years ago, when preliminary results were released,<sup>7</sup> it also contradicts the conclusions of an independent review panel, which said there's "clear evidence" linking radiofrequency (RF) radiation with heart schwannomas and "some evidence" linking it to brain and adrenal cancer.

Despite downplaying the effects, the NTP stated that, if these results can be confirmed, then cellphone radiation may indeed be a "weak" carcinogen. Well, we didn't have to wait long for that confirmation. In the first week of March 2018, the highly respected Ramazzini Institute in Italy published the results of a lifetime exposure study<sup>8</sup> that also shows a clear link between cellphone radiation and Schwann cell tumors (schwannomas).<sup>9,10,11</sup>

### **Reproducible Effects**

The NTP-funded studies found rats exposed to RF radiation began developing glial cell hyperplasias — indicative of precancerous lesions — around week 58; heart schwannomas were detected around week 70. Ramazzini's study reinforces these results, showing RF radiation increased both brain and heart tumors in exposed rats even at much lower power levels than those used by NTP.

While NTP used radiofrequency (RF) levels comparable to what's emitted by 2G and 3G cellphones (near-field exposure), Ramazzini simulated exposure to cellphone towers (far-field exposure). Ramazzini's rats were exposed to 1.8 GHz GSM radiation at electric field strengths of 5, 25 and 50 volts per meter<sup>12</sup> for 19 hours a day, starting at birth until the rats died either from age or illness.

To facilitate comparison, the researchers converted their measurements to watts per kilogram of body weight (W/kg), which is what the NTP used. Overall, the radiation dose administered in the Ramazzini study was up to 1,000 times lower than the NTP's — yet the results were strikingly similar. As in the NTP studies, exposed male rats developed statistically higher rates of heart schwannomas than unexposed rats.

They also found some evidence, although weaker, that RF exposure increased rates of glial tumors in the brains of female rats. Importantly, the exposure levels used in Ramazzini's study were all below the U.S. limits set by the Federal Communications Commission.

This means Americans can legally be exposed to cancer-causing levels of radiation. As noted by Ronald Melnick, Ph.D., a former senior NIH toxicologist who led the design of the NTP study and current senior science adviser to the Environmental Health Trust,<sup>13</sup> governments really need to protect the public by strengthening regulations.

### **IARC Urged to Upgrade Carcinogenicity Risk of Cellphone Use**

In light of these combined findings, Ramazzini researchers are now urging the IARC to upgrade its carcinogenicity classification for cellphones from a "possible" to a "probable" human carcinogen. Fiorella Belpoggi, director of research at the Institute and the study's lead author, told Microwave News:<sup>14</sup>

*"The [Ramazzini Institute] findings on far field exposure to RFR [radio frequency radiation] are consistent with and reinforce the results of the NTP study on near field exposure, as both reported an increase in the incidence of tumors of the brain and heart in RFR-exposed Sprague-Dawley rats ... The two laboratories worked independently at many thousands of kilometers' distance, using the same strain of rats, and found the same results. It cannot be by chance.*

*Both findings are also consistent with the epidemiological evidence, where an increased incidence of tumors of the same cells (Schwann cells) of the acoustic nerve had been associated with the use of mobile phones ... [E]ven if the risk is to be considered low, due to the large number of exposed individuals, we could expect thousands of people affected by serious diseases like cancer of the peripheral nerves and brain."*

Indeed, a recent analysis<sup>15,16</sup> reveals the incidence of glioblastoma multiforme, the deadliest type of brain tumor, more than doubled in the U.K. between 1995 and 2015. According to the authors, the dramatic increase is likely due to "widespread environmental or lifestyle factors," which would include cellphone usage.

### **Why Major Media Ignored the News**

You'd think these replicable findings would make major headlines, yet — as noted by Hertsgaard and Dowie — the story was universally ignored by major media in both the U.S. and Europe.<sup>17</sup> The pair goes on to detail how, for the past 25 years, the telecommunications industry has orchestrated "a global PR campaign aimed at misleading not only journalists, but also consumers and policymakers about the actual science concerning mobile phone radiation."

As in other toxic industries, the manufacture of doubt is a key defense strategy. All appearance of consensus must be squashed. As noted in a 1969 "smoking and health proposal"<sup>18</sup> written by an executive at the American tobacco company Brown & Williamson, "Doubt is our product. It is also the means of establishing a controversy ... at the public level."

A big part of creating doubt involves downplaying and refuting research that finds harm; another is to fund the creation of "friendly" research. As long as doubt is maintained, no new regulations will be imposed that might weaken industry profits. Doubt will also prevent most people from ditching its products or demanding significant, and perhaps costly, changes.

The Cellular Telecommunications and Internet Association (CTIA) did launch an industry-led safety investigation in 1993, with epidemiologist George Carlo at the helm. Why? Because earlier that year, David Reynard had sued NEC America, claiming his wife's lethal brain tumor had been caused by one of their cellphones. As Reynard's story spread, a congressional subcommittee announced it would conduct an investigation, causing stocks to tank.

CTIA had to act, and avoided industry collapse by announcing its own safety review. Alas, even though Carlo was hand-picked by CTIA for the job, in the end he was unable to provide the evidence they wanted. Early 1999, he presented CTIA with evidence showing there was in fact a correlation between brain tumors and cellphone placement. There was also evidence suggesting cellphone radiation damaged the function of genes.

### **Cellphone Customers Need Information to Make Informed Decisions About Usage**

Carlo urged the telecom industry to give consumers the information needed to make an informed decision about their use of cellphones. Obviously, his plea fell on deaf ears. He told Hertsgaard and Dowie the CTIA, "would do what they had to do to protect their industry," and that "they were not of a mind to protect consumers or public health."<sup>19</sup> What they "had to do" to protect themselves included publicly discrediting Carlo for doing the work he'd been paid to do in the first place.

Compared to 1999, the industry's stakes are now higher than ever, and there can be little doubt that profit is still weighing heavier than science. "This article does not argue that cell phones and other wireless technologies are necessarily dangerous; that is a matter for scientists to decide," Hertsgaard

and Dowie write, "Rather, the focus here is on the global industry behind cellphones — and the industry's long campaign to make people believe that cell phones are safe."

Indeed, like the vaccine industry, the mobile phone industry is fighting to suppress even the mere hint of a problem. Take Berkeley, California, for example. Since 2015, Berkeley has required cellphone providers to post warning signs in their stores cautioning customers that carrying your cellphone in your pocket or bra while the phone is on may cause you to be exposed to levels of radiation that exceed the federal safety guidelines.

Even this relatively minor warning is apparently too great a giveaway that radiation might not be harmless after all, as CTIA fights to have these "inflammatory" and "misleading" advisories removed. So far, Berkeley has won two legal battles over the signage. June 28, 2018, the U.S. Supreme Court vacated the appeals court ruling, however, and the case is now being reconsidered in the United States Court of Appeals for the Ninth Circuit.

As reported by Lynne Peebles of FairWarning.org,<sup>20</sup> "CTIA's legal argument is emblematic of efforts by business groups to contest regulations ... by arguing that the rules violate free speech protections." According to Harvard law professor Lawrence Lessig, the CTIA case demonstrates how "the First Amendment has become a tool of corporations to stop regulation."

### **Safety Question Getting Increasingly Pressing as Scientists Discover More Biological and Environmental Harm**

The wireless industry has quickly become the fastest-growing industry on Earth, raking in \$440 billion in 2016 alone. At present, 95 percent of American adults own a cellphone, as do 75 percent of adults globally. What's more, the transition to 5G will dramatically increase RF-EMF radiation exposure as it will require the installation of small antennas every 250 feet or so to ensure connectivity.

Clearly, the question of safety could not be any more pressing. Again and again, studies have found serious cause for concern, and the need for prudence. The NTP and Ramazzini studies are but two of the last ones in a long line of studies showing there's real risk involved.

Other recent research found exposure to cellphone radiation for one year may have a negative effect on figural memory performance in adolescents,<sup>21</sup> and an analysis<sup>22,23</sup> of 97 peer-reviewed studies concluded wireless technologies are harming mammals, birds, insects and plants.

As noted by Hertsgaard and Dowie, the reason consumers are still largely unaware of these risks is because the industry has successfully managed to mislead us. The question is, how much longer will people believe the lies and whitewashing? After all, Big Tobacco's gamebook is no longer an industry secret, and you can clearly see the play-by-play taking place once you start paying attention. Hertsgaard and Dowie write:<sup>24</sup>

*"[W]ireless executives have chosen not to publicize what their own scientists have said about the risks of their products. On the contrary, the industry ... has spent untold millions of dollars in the past 25 years proclaiming that science is on its side, that the critics are quacks, and that consumers have nothing to fear. This, even as the industry has worked behind the scenes — again like its Big Tobacco counterpart — to deliberately addict its customers ...*

*[T]he wireless industry not only made the same moral choices that the tobacco and fossil-fuel industries did; it also borrowed from the same public-relations playbook those industries pioneered. The playbook's key insight is that an industry doesn't have to win the scientific argument about safety; it only has to keep the argument going ... Central to keeping the scientific argument going is making it appear that not all scientists agree."*

## **There Is Scientific Consensus — Cellphones Cause Biological Effects**

One of the easiest ways of manufacturing a perceived lack of consensus is by funding industry-friendly research. A number of studies have shown that industry funding significantly influences the outcome of the research, and work by bioengineering professor Henry Lai<sup>25</sup> reveals the same effect holds true for the telecom industry. Lai analyzed 326 cellphone safety studies published between 1990 and 2005; 56 percent found a biological effect from cellphone radiation while 44 percent did not.<sup>26</sup>

This would make you think the research field was split nearly down the middle, as did Lai at first. But that turned out not to be the case after all. When he looked at the funding of each study, he discovered 67 percent of the independently funded studies found a biological effect, compared to just 28 percent of the industry-funded studies.

These findings were later replicated,<sup>27</sup> showing studies funded by the mobile phone industry are two and a half times less likely to find a health effect from cellphone radiation. It is this funding bias that creates the illusion that there's no clear consensus.

*"One key player has not been swayed by all this wireless-friendly research: the insurance industry. The Nation has not been able to find a single insurance company willing to sell a product-liability policy that covered cellphone radiation," Hertzgaard and Dowie write.<sup>28</sup>*

*"'Why would we want to do that?' one executive chuckled before pointing to more than two dozen lawsuits outstanding against wireless companies, demanding a total of \$1.9 billion in damages. Some judges have affirmed such lawsuits, including a judge in Italy who refused to allow industry-funded research as evidence.<sup>29</sup>"*

## **Protect Yourself From Excessive Electromagnetic Field Radiation**

There's no doubt in my mind that exposure to wireless technologies is a significant health hazard that needs to be addressed if you're concerned about your health. To learn more about how EMFs affect your health, see "[How to Reduce EMF Exposure](#)," in which I go into some of the mechanics of how this nonionizing radiation affects your body.

Keep in mind that cellphones are not the only hazard. Countless other sources exist as well, including Wi-Fi routers, cordless phones, baby monitors, computers, tablets — and your household wiring. Cellphones are certainly a significant source of exposure, but if you're dedicated to protecting your health, you may need to address other sources as well. Here are several suggestions that will help reduce your EMF exposure:

Connect your desktop computer to the internet via a wired Ethernet connection and be sure to put your desktop in airplane mode. Also avoid wireless keyboards, trackballs, mice, game systems, printers and portable house phones. Opt for the wired versions.

If you must use Wi-Fi, shut it off when not in use, especially at night when you are sleeping. Ideally, work toward hardwiring your house so you can eliminate Wi-Fi altogether. If you have a notebook without any Ethernet ports, a USB Ethernet adapter will allow you to connect to the internet with a wired connection.

Shut off the electricity to your bedroom at night. This typically works to reduce electrical fields from the wires in your wall unless there is an adjoining room next to your bedroom. If that is the case you will need to use a meter to determine if you also need to turn off power in the adjacent room.

Use a battery-powered alarm clock, ideally one without any light. I use a talking clock for the visually impaired.<sup>30</sup>

If you still use a microwave oven, consider replacing it with a steam convection oven, which will heat your food as quickly and far more safely.

Avoid using "smart" appliances and thermostats that depend on wireless signaling. This would include all new "smart" TVs. They are called smart because they emit a Wi-Fi signal and, unlike your computer, you cannot shut the Wi-Fi signal off. Consider using a large computer monitor as your TV instead, as they don't emit Wi-Fi.

Refuse smart meters as long as you can, or add a shield to an existing smart meter, some of which have been shown to reduce radiation by 98 to 99 percent.<sup>31</sup>

Consider moving your baby's bed into your room instead of using a wireless baby monitor. Alternatively, use a hard-wired monitor.

Replace CFL bulbs with incandescent bulbs. Ideally remove all fluorescent lights from your house. Not only do they emit unhealthy light, but more importantly, they will actually transfer current to your body just being close to the bulbs.

Avoid carrying your cellphone on your body unless in airplane mode and never sleep with it in your bedroom unless it is in airplane mode. Even in airplane mode it can emit signals, which is why I put my phone in a Faraday bag.<sup>32</sup>

When using your cellphone, use the speaker phone and hold the phone at least 3 feet away from you. Seek to radically decrease your time on the cellphone. I typically use my cellphone less than 30 minutes a month, and mostly when traveling. Instead, use VoIP software phones that you can use while connected to the internet via a wired connection.