

# The Kids Are Not All Right

## How Wireless Tech Is Harming Our Youth And What Parents Can Do Right Now

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*“Children are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children.”*

—American Academy of Pediatrics, 2013

**Don't run with scissors. Don't talk to strangers. Don't play with matches. Don't drink and drive. Don't do drugs.**

Parents are eternally concerned about their children's safety. From infancy to adolescence, children are developing humans—physically, behaviorally and intellectually. To emerge as healthy, well-adjusted adults, kids need their parents' protection. And when it comes to children and wireless-tech safety, there's a lot parents need to know.

### What is Wi-Fi, Really?

We can't see Wi-Fi with the naked eye—but we're surrounded by it, 24/7. Wireless technology encompasses our cell phones, tablets, cell towers, smart meters, wireless-enabled laptops, baby monitors, gaming consoles, e-readers, virtual-reality toys and the emerging Internet of Everything.

The term “Wi-Fi” sounds harmless enough, right? Its utterance like a baby's coo or cartoon slang. It alliteratively conjures “Sci-Fi” flying cars and time travel. But let's call wireless tech what it really is—radiofrequency radiation, also called microwave radiation.

Technically speaking, “Wi-Fi deploys pulse-modulated microwave radiation (within the larger radiofrequency spectrum) with a carrier frequency that is similar to that used by a microwave oven (about 2.45 gigahertz).”<sup>5</sup> In 2011, the International Agency for Research on Cancer classified radiofrequency radiation as “possibly carcinogenic to humans.” This is the same category as lead, DDT, and other pesticides.

## Who's at Risk?

Science shows that wireless radiation can cause a gamut of biological effects, from cancer and neurodegenerative diseases to birth defects and infertility. And yet, outdated world-wide safety regulations only consider short-term heating (i.e., thermal) and shock effects. They don't consider the chronic, non-thermal exposures of our wireless tech world.<sup>2</sup>

As a human population, we are all at risk from environmental exposures and toxins. But, the most vulnerable are children, the developing fetus and pregnant women. A child's brain, nervous system and immune system are in development at these critical periods. Despite this, "there is a growing, unchecked and unregulated availability of a range of transmitting equipment specifically aimed at parents of babies and young people."<sup>2</sup>

Yes, this includes that wireless baby monitor (2 inches from your baby's head), that working cell phone in your toddler's mouth, or that tablet broadcasting under your teen's pillow—all these seemingly innocuous devices can be hazardous to your child's health.

## AMERICAN ACADEMY OF PEDIATRICS CELL PHONE SAFETY TIPS FOR FAMILIES

- 1 Use text messaging when possible, and use cell phones in speaker mode or with the use of hands-free kits.
- 2 Avoid carrying your phone against the body like in a pocket, sock or bra. Cell phone manufacturers can't guarantee that the amount of radiation you're absorbing will be at a safe level.
- 3 If you plan to watch a movie on your device, download it first, then switch to airplane mode while you watch in order to avoid unnecessary radiation exposure.
- 4 Keep an eye on your signal strength (i.e., how many bars you have). The weaker your cell signal, the harder your phone has to work and the more radiation it gives off.
- 5 Avoid making calls in cars, elevators, trains and buses. The cell phone works harder to get a signal through metal, so the power level increases.
- 6 Remember that cell phones are not toys or teething items.

Read more tips at:  
[HealthyChildren.org](http://HealthyChildren.org)

### REFERENCE:

+American Academy of Pediatrics. "Cell Phone Radiation & Children's Health: What Parents Need to Know." <https://www.healthychildren.org/English/safety-prevention/all-around/Pages/Cell-Phone-Radiation-Childrens-Health.aspx>

"Around the world we are paying the price now for having delayed actions on tobacco and asbestos after insisting on human harm before taking action. We cannot afford to wait for definitive proof of human risks from radiation emitted by wireless transmitting devices before taking steps to reduce exposures. The absence of evidence of hazard is not proof of safety"—says Dr. Devra Davis, president of the Environmental Health Trust and visiting professor at the Hebrew University Hadassah Medical School and Ondokuz Mayıs University, Turkey.

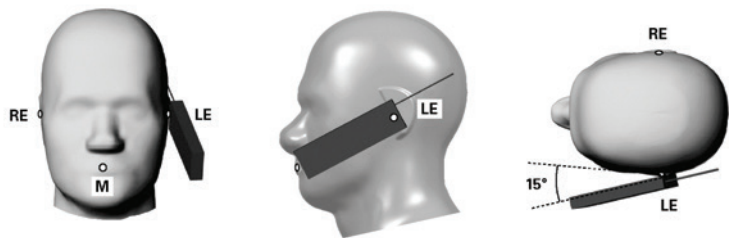
## Who is SAM?

Standing for "Specific Anthropomorphic Mannequin," SAM is a plastic model of a head, which, in 1989, was made to represent the top 10 percent of U.S. military recruits. That's a 220-pound man with a pretty large head.

SAR, another relevant acronym, stands for "Specific Absorption Rate"—a measure of tissue-radiation exposure.<sup>9</sup> The cell phone industry currently uses SAM for compliance testing against safety guidelines and to certify the SAR for mobile phone users.

However, research shows that a smaller head than SAM will absorb significantly more radiofrequency radiation.<sup>12</sup> Obviously, children's smaller heads have a shorter distance to the brain center. Also, children's skulls and ears are thinner, allowing radiation to penetrate farther. And children's brains contain more fluid, and thus absorb more radiation.<sup>4, 12</sup>

The SAR for a 10-year-old is up to 153 percent higher than the SAR for the SAM model,<sup>1</sup> yet there is no pre-market certification testing for SAR on a child-equivalent head (or an adult's head smaller than SAM). And "when electrical properties are considered, a child's head's absorption can be over two times greater, and absorption of the skull's bone marrow can be 10 times greater than adults."<sup>1</sup>



An example of a test position used on the Specific Anthropomorphic Mannequin, in this case with cell phone in tilted position on the left side.

+ <https://biomedical-engineering-online.biomedcentral.com/articles/10.1186/1475-925X-3-34>.

IMAGE SOURCE: BIOMED CENTRAL LTD

## What Does the Latest Science Say?

In May 2016, the National Toxicology Program released partial findings of their \$25 million study on cell phones and cancer. The results showed that exposure to wireless radiation significantly increases the prevalence of highly malignant heart and brain cancers in rodents.

"The findings of brain tumors (gliomas) and malignant Schwann cell tumors of the heart in the NTP study, as well as DNA damage in brain cells of exposed animals, present a major public health concern because these tumors occurred in the same types of cells that had been reported to develop into tumors (gliomas and acoustic neuromas) in epidemiological studies of adult cell phone users,"

## SHOW US THE FINE PRINT

Cell phone companies issue instructions to keep wireless devices at specified distances from our bodies. So, if you've got your mobile on your ear, or your tablet on your abdomen, you may be exposed to higher radiation levels than those tested as safe. But this information is often buried in the fine print, sometimes even buried in the device itself.

### Here's a sampling of manufacturer instructions:

#### ● **Baby Monitor Motorola MBP33**

"The Baby unit shall be installed and used such that parts of the user's body other than the hands are maintained at a distance of approximately 20 centimeters (8 inches) or more."

#### ● **Samsung 3G Laptop**

"Usage precautions during 3G connection: Keep safe distance from pregnant women's stomach or from lower stomach of teenagers. Body worn operation: Important safety information regarding radiofrequency radiation exposure. To ensure compliance with radiofrequency exposure guidelines the Notebook PC must be used with a minimum of 20.8 centimeters antenna separation from the body."

#### ● **iPhone 6**

"To reduce exposure to radiofrequency energy, use a hands-free option, such as the built-in speakerphone, the supplied headphones, or other similar accessories. Carry iPhone at least 5 millimeters away from your body to ensure exposure levels remain at or below the as tested levels. Cases with metal parts may change the radiofrequency performance of the device, including its compliance with radiofrequency exposure guidelines, in a manner that has not been tested or certified."

Find your device at:

[ShowTheFinePrint.org](http://ShowTheFinePrint.org)

#### REFERENCE:

+Show Us The Fine Print. <http://showthefineprint.org/>

explains Ron Melnick, Ph.D., senior toxicologist and director of Special Programs in the Environmental Toxicology Program at the National Institute of Environmental Health Sciences, National Institutes of Health, now retired.

In response to these results, the American Academy of Pediatrics issued new recommendations for reducing exposure to cell phones and wireless devices. In an AAP press release, Jennifer A. Lowry—M.D. and chair of the AAP Council on Environmental Health Executive Committee—said: "They're not toys. They have radiation that is emitted from them and the more we can keep it off the body and use (the phone) in other ways, it will be safer."<sup>7</sup>

### Microwave Tech in Schools

Computers and the Internet are vital learning tools. But the crux of the matter with wireless tech is safety. And this rampant technology has never been tested for the long-term, overlapping, cumulative exposures experienced in today's schools by the most vulnerable population: children.

Students in schools are bombarded with wireless radiation from every conceivable angle: their own personal devices, the devices of all nearby users in surrounding classrooms, wireless devices in the school itself (routers, printers, smart boards, etc.), and transmitters (i.e., cell towers) in close proximity outside the school. Plus, to simultaneously handle the hundreds of devices needed to conduct its daily activities, schools typically install stronger Wi-Fi systems. Most residential homes now have Wi-Fi hubs and multiple devices per household member—meaning that when kids return home, they get no respite.

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Consequently, in schools across the world, kids are getting sick from this unprecedented level of wireless exposure. Dafna Tachover, founder of We Are The Evidence—an advocacy group for those injured by wireless technology—is an attorney in both Israel and New York. She regularly works with children and parents who have developed electro-sensitivity to wireless tech. Symptoms commonly reported include: headaches, nausea, vomiting, cognitive problems, tingling, severe exhaustion, noise sensitivity, sinus pressure and nose bleeds.

In a case submitted to the Israeli Supreme Court, Tachover presented 200 children, from six schools, who had become sick from wireless tech. In one particular school, 70 children from three classes started having symptoms after a second wireless router was installed. Tachover uncompromisingly states: "Our school systems are creating the most intense environment of radiation, and they're doing it to the most sensitive population. The harm has already been proven. There's an epidemic of sickness in the schools."

After significant efforts, in April 2016 the city of Haifa, in Israel, ordered all Wi-Fi to be disconnected in schools. In a press release, Haifa's mayor, Yona Yahav, is cited saying, "When there is a doubt, when it comes to our children, there is no doubt."

This is a step in the right direction, but internationally there continue to exist countless groups of concerned parents and researchers urging school administrations to adopt best tech practices. Schools can get the same educational benefits from a *wired* (fiber-optic and Ethernet) network, and in doing so, they wouldn't be putting an entire generation of kids at risk.

### There's No Wi-Fi in Narnia

Some schools are now rolling out virtual-reality curricula, like the Google Expeditions Pioneer Program. Sure, it sounds cool to take a trip to Mars without leaving the classroom. But, hold that virtual-reality visor up to a child's eyes, and what you've got is a cell phone encased in a cardboard box, beaming microwave radiation directly into a child's brain.

Whether used in school or at home, virtual-reality toys have never been pre-market tested for health consequences. Dr. Mary Redmayne, a researcher at Monash University in Australia, explains: "Children's brains are not fully myelinated and eyes absorb radiation readily due to their high water content. Placing a two-way microwave radiating device directly in front of young eyes is not a wise choice in my opinion."<sup>9</sup>

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Theodora Scarato—Environmental Health Trust's director of Public Affairs and Educational Resources—speaks to another angle regarding digital play. "The research shows that simpler is often better in terms of toys. When you have a bunch of building blocks, then a child can use their own creativity to imagine what these blocks are. But when it's already pre-scripted, the child is using less creativity, because the choice has already been taken away. You can only be as creative as the program application is. And that is stifling. When I listen to children tell me about what they imagine in their minds, I'm always blown away. A computer's drop down menu can't even come close."

### Tech Addiction

"A representative survey of American tweens (8- to 12-year-olds) and teens (13- to 18-year-olds), documented that outside of school and homework, tweens spend almost six hours per day (5:55 hours) and teens spend almost nine hours per day (8:56 hours) using media."<sup>11</sup>

While "Tech Addiction" is not yet classified as a disorder in *The Diagnostic and Statistical Manual of Mental Disorders*, the phenomenon is nonetheless being investigated by a host of psychologists and researchers. Clinical psychologist Catherine Steiner Adair sheds light on the impact of the omnipresent glowing screen within the family dynamic: "Everything a baby needs from its environment between birth and 2 years comes from people, from relationships with people and interactions with the environment—physically exploring, playing, crawling, and interacting with others. When we triangulate our relationship with our babies and tech, we compromise that essential connection."<sup>10</sup>

Further, "the development of empathy is a critical step in early childhood and over a lifetime. Empathy is the caring glue that creates our humanity, our compassion."<sup>10</sup> We learn empathy through direct human contact. This is thwarted when kids correlate personal identity with their Xbox avatar or their Facebook status. The blood in Halo isn't real; sad-face emojis aren't tears. When disconnected from real-life interaction, kids don't learn accountability for negative actions or mean words. What kind of society will emerge when our technology-obsessed youth is decoupled from the tangibility of human consequences?

### Like a Kid in a Candy Store

An apt allegory might be Roald Dahl's *Charlie and the Chocolate Factory*. Faced with his tempting, addictive, untested, fantastical inventions, the story's overindulgent kids were squeezed, colorized, ballooned and miniaturized, while their parents stood idly by and watched—all for Mr. Wonka's industrial benefit and profit.

Kids today should not literally be left to their own devices. The proliferation of wireless radiation is the biggest public health experiment ever conducted, and it's happening on an entire generation of children. Do you want to experiment on your kids?

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## 10 STEPS FOR PREGNANT WOMEN TO LIMIT THEIR WIRELESS RADIATION EXPOSURE:

- 1 Avoid carrying your cell phone on your body.
- 2 Avoid holding any wireless device against your body when in use.
- 3 Use your cell phone on speaker setting or with an "air tube" headset.
- 4 Avoid using your wireless device in cars, trains or elevators.
- 5 Avoid cordless phones, especially where you sleep.
- 6 Whenever possible, connect to the Internet with wired cables.
- 7 When using Wi-Fi, connect only to download, then disconnect and disable Wi-Fi.
- 8 Avoid prolonged or direct exposure to nearby Wi-Fi routers.
- 9 Unplug your home Wi-Fi router when not in use.
- 10 Sleep as far away from wireless utility meters (i.e., "smart meters") as possible.

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