

# WI-FI AND SMARTPHONE FACT SHEET

## 1. New Studies Find Microwave Radiation from Smartphones Could Cause Brain Cancer

The landmark \$25 million **U.S. NIH/NIEHS National Toxicology Program** study found long-term daily exposure to cell phone radiation led to cancers of the brain and heart nerve in male rats, as well as **DNA damage**. **Studies in humans** who used cell phones close to their heads for over 10 years develop the same types of cancers.

## 2. Smartphone Radiation Is Linked to Brain Damage, ADHD, Fertility Problems and More

Compliance with government guidelines generally has been presented as “safe” and so cell phones and wireless devices are assumed as safe by the public. However, peer reviewed studies show that very low radiation intensities, far far below regulatory government limits, can cause serious damage to health. Even though this radiation is much weaker than x-rays, it can induce a range of damage.

A Yale Medicine study **found** that prenatally exposed mice **showed** increased hyperactivity, impaired memory and abnormal brain development. This study is one of **many** that have linked wireless radiation to impacts such as **damaged brain cells, altered brain activity, memory problems, headaches** and **sleep problems**. Numerous **studies** indicate that **cell phone** and **Wi-Fi radiation** damage sperm. **Connections** between electromagnetic exposure and **autism and ADHD** have led **doctors to advise** reducing exposure. More than 140 physicians, scientists and educators signed the **BabySafe Project’s Joint statement** emphasizing that pregnant women reduce cell phone radiation exposure due concerns about impacts of exposure to prenatal brain development.

## 3. Virtual Reality with Smartphones Exposes The Eyes To Microwaves and Is Linked To Eyesight and Balance Problems in Children

Smartphones are placed in virtual reality (VR) headgear to take children on adventures to faraway places, but when **researchers** evaluated the wireless radiation exposure, they **found** the highest radiation intensities were to the eye and frontal lobe of the brain as phones are positioned in front of the face. Safety testing was never done for such repeated exposures to the eye.

Even without smartphone radiation, VR technology is linked to visual problems in children due to the headgear placement in front of the eyes. A recent **Leeds University** study **found** a 20-minute VR game led to eyesight and balance problems in children. Understanding that children’s eyes are more vulnerable, VR headgear **instructions** usually warn that the headgear should not be used by children under the age of 13 because “watching videos or playing games with the [a VR headset] may affect the visual development of children.” Both **eye doctors** and **scientists** who study cell phone radiation are issuing warnings.

## 4. Cell Phones Were Never Tested for Long-Term Safety nor for Use by Children

Cell phones were never pre-market tested for long-term safety. Safety limits for cell phone radiation were set 20 years ago, based on 30-year-old science, using a model of a large adult male. After a **Government Accountability Office report** recommended a review of U.S. human exposure guidelines, the FCC **opened** a docket and many scientists submitted expert **comments** calling current standards “inadequate” to protect children. Parents assume they are buying devices and toys that have been deemed “safe,” but no U.S. health agency has ever completed a systematic evaluation of the health risks of wireless radiation. Cell phone companies **inform** their shareholders that wireless devices may pose a financial risk, and most insurance companies **exclude damages** from exposure to cell phone radiation due to their **evaluation** of this type of radiation as high risk.

## 5. Makers of “Smart” Toys, “Wearables” and Cell Phones Issue Fine Print Warnings That Are Impossible to Follow

All cell phones have **fine print warnings** advising that users maintain a specific separation distance between the phone and the body. Manufacturers radiation test the phone at this distance.

For example, the **LG G6 Manual** on page 158 states, “To comply with FCC RF exposure requirements, a minimum separation distance of 0.39 inches (1.0 cm) must be maintained between the user’s body and the back of the phone.” Are children remembering to place their phones in their pockets with the back of the phone facing out?

Many wireless toys also warn about keeping a safe distance from the device. For example, there is an internet-connected watch that **Verizon says**, “you and your kid can be happy about.” But would you be happy about strapping a device on your kid’s wrist that has a **fine print warning** in the manual recommending “a minimum separation distance of 0.39 inches (1cm) must be maintained between the user’s mouth (face) and the front of the device”? The Apple Watch also carries a **fine print warning** that the user keep a distance of 1 cm from the antenna, while the same device is touted as “wearable.” But what parent who gives their kid an Apple Watch tells them not to rest their head on their arms—as that would create body contact with the watch?

Many video gaming system consoles also **state to users**, “this equipment should be installed and operated with at least 20 cm (8 in) and more between the radiator and person’s body (excluding extremities: hands, wrists, feet and legs). Many laptops also state that the antennas should be about 8 inches from the body. Do you know where the antenna is on your child’s device?

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## 6. When Cell Phones Are Tested In Contact With The Body, The Radiation Violates Government Safety Limits

Last year, France **released** the results of their cell phone radiation measurements on hundreds of cell phones after pressure from a French physician making **headline** news. The **test results** found that when the phones were tested in body contact positions, up to 90% of the phones exceeded radiation limits, some over 3 times the European limits and over 9 times the equivalent US limits. This means most phones could allow 3 to 9 times the allowable radiation into your body. The French test results apply to phones sold all over the world because the situation is the same in every country. Manufacturers do not have to test phones or wireless devices in positions of body contact.

So when a child rests a phone on their leg to watch a video, or lies in bed with the phone on their chest streaming music, their body could be absorbing radiation at levels far higher than government limits.

## 7. The World Health Organization Classified The Microwave Radiation In Smartphones As A Possible Carcinogen in 2011 and Current Evidence Indicates It Is A Human Carcinogen.

In 2011, the World Health Organization's International Agency for Research on Cancer (WHO/IARC) **classified** radio frequency as a Class 2B Possible Carcinogen. However, because of the newly released National Toxicology Program (NTP) findings and several other studies published since then, **long-time advisors** to the WHO/IARC conclude that this radiation should be regarded as a human carcinogen causing glioma—the same type of brain cancer that affected Senators Ted Kennedy and John McCain.

Surgeons have published **case reports** of unusual cancers in young women who have stored a cell phone in their bras. The tumors were located directly under the areas where the antennas of the phones were stored.

## 8. The American Academy of Pediatrics Recommends Families Reduce Exposure To Children and Has Called on the Federal Government to Tighten Wireless Radiation Limits.

Children have thinner skulls, smaller heads and higher water content in their developing tissues. As a result, cell phone radiation penetrates deeper and more intensely into a child's brain when compared to an adult. According to the World Health Organization's International Agency for Research on Cancer, "in children using mobile phones, the average deposition of RF energy may be two times higher in the brain and up to ten times higher in the bone marrow of the skull." **The American Academy of Pediatrics** reiterated this fact and children's unique vulnerability in their letters calling on the Federal government to tighten cell phone radiation exposure limits.

After the results of the National Toxicology Program results were made public, the American Academy of Pediatrics issued a **press release** recommending that parents "limit use of cell phones by children and teens" and **issued** ten steps to the public to reduce cell phone radiation exposure.

## 9. The California Department of Public Health Just Issued Public Health Advice To Reduce Exposure To Cell Phone Radiation.

The newly released **guidance** from California to reduce exposure to radiofrequency radiation from cell phones made **headline national news** last week and cautions that "children may be more at risk" because they will be exposed to cell phone radiation for a "lifetime." The Department states, "laboratory experiments and human health studies have suggested the possibility that long-term, high use of cell phones may be linked to certain types of cancer and other health effects, including: brain cancer and tumors of the acoustic nerve and salivary glands, lowered sperm quality and inactive or less mobile sperm, headaches and effects on learning and memory, hearing, behavior and sleep."

The Connecticut Department of Public Health has also issued advice to reduce cell phone radiation as has **Consumer Reports**. Last year the **Maryland State Children's Environmental Protection Council** issued recommendations to reduce radiofrequency radiation in public school classrooms. Several **medical organizations internationally** and over a **dozen countries** recommend children minimize wireless phone exposures.

## 10. Even When "Sleeping," Smartphones/Toys/Watches Emit Radiation

A phone might be sitting quietly on your nightstand, in your pocket, or tucked into the waistband of your yoga pants, but it is always radiating. Apps are updating, texts are incoming and notifications are arriving. The phone is always "checking in" with pulsed microwaves several times per second to the nearest cell tower. Likewise, Wi-Fi toys are always checking in with the Wi-Fi router even when they are not being used. Each time a device makes that connection near your body, you are exposed to pulsed radiation.

Cell phone regulations were set decades ago and the way people are using phones has dramatically changed. At that time, adults used phones with belt clips and Wi-Fi was non-existent. Long term safety testing was not done. Research to understand the risk to children was not done.