

ELECTROMAGNETIC RADIATION (EMR)

UNDERSTANDING THE RISKS



RF RADIATION: A POSSIBLE HUMAN CARCINOGEN

In 2011, the World Health Organization's International Agency for Research on Cancer (WHO IARC) classified radiofrequency electromagnetic fields (RF EMFs) as **'possibly carcinogenic to humans'** based on an increased risk of glioma—a malignant type of **brain cancer**—identified in those who used cell phones for over 10 years for an average of 30 minutes per day. **WHO IARC has recommended the status of RF EMFs to be re-evaluated 'with high priority'.**

ELECTROMAGNETIC SENSITIVITY (EMS) SYMPTOMS

Journal of Environment
and Health Science

OMEGA Publishers

ISSN: 2378-6841
OPEN ACCESS

DOI: 10.15436/2378-6841.19.2402

The Prevalence of People with Restricted Access to Work in Manmade Electromagnetic Environments

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Headaches, nausea, vomiting, dizziness, sleep problems, heart palpitations, tinnitus (ringing in the ears), **vertigo, skin rashes and memory and cognitive issues** are all documented symptoms of a condition known as Electromagnetic Sensitivity (EMS). EMS, a recognized disability, can be described as a heightened sensitivity to radio frequency radiation from sources such as smartphones, WiFi and cell towers. **According to some estimates, it affects up to 30% of the population.**

CHILDREN ARE MORE VULNERABLE

Children, due to their smaller heads and thinner skulls, are particularly vulnerable to RF radiation exposure. According to the American Academy of Pediatrics, **"Children ... are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation."** In fact, according to IARC, when used by children, the average RF energy deposition is two times higher in the brain and 10 times higher in the bone marrow of the skull, compared with mobile phone use by adults." In human and animal studies, exposure to RF radiation has been associated with several health issues such as **behavioral problems, hyperactivity, decreased learning, memory reduction, and an increased risk of autism and asthma.**



RF RADIATION CLEARLY AFFECTS MALE FERTILITY

Health impact of 5G



Current state of knowledge of 5G-related carcinogenic and reproductive/developmental hazards as they emerge from epidemiological studies and in vivo experimental studies

EPRS | European Parliamentary Research Service
Scientific Foresight Unit (STOA)

A study by the European Parliamentary Research Service, titled the *Health Impact of 5G*, concludes that certain ranges of RF radiation **"probably cause cancer,"** particularly gliomas and acoustic neuromas in humans. They also **"clearly affect male fertility,"** **"possibly affect female fertility,"** and **"possibly have adverse effects on the development of embryos, fetuses and newborns."**

Learn more at:
childrenshealthdefense.org/wireless

ELECTROMAGNETIC RADIATION (EMR)

EXPLORING THE SCIENCE

MILLIMETER WAVES PRODUCE BURNS ... AND MORE



Millimeter waves (mmWave) are the highest frequency radiation ever used in mass telecommunications networks. **Preliminary observations show that mmWaves increase skin temperature, alter gene expression, promote cellular proliferation, induce oxidative stress, affect inflammatory and metabolic processes, may generate ocular damages, and affect neuro-muscular dynamics.** According to 5G industry expert, IEEE, "...thermal injury due to overexposure of mmWave is expected to produce superficial burns like those produced when a person touches hot objects or flames. In other words, mmWave-induced burns will likely generate **blistering and local inflammatory responses that are similar to conventional burns...**"

RF RADIATION AFFECTS BEES, TOO.

Bees play an integral role in the proper functioning of ecosystems and are an essential part of our food chain. According to scientific research, exposure to radiofrequency radiation affects the behavior and physiology of honey bees, resulting in **reduced motor activity and a significant decline in the egg-laying rate of the queen.**

Exposure to Cell Phone Radiations Produces Biochemical Changes in Worker Honey Bees

Neelima R. Kumar, Sonika Sangwan, and Pooja Badoira

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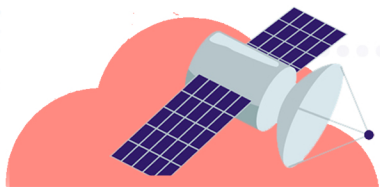


NO LONG TERM SAFETY STUDIES

There are **no studies demonstrating the long-term effects of prolonged exposure to 5G technologies.** In fact, during a congressional hearing in 2019, a VP in the telecom industry admitted under oath: "To my knowledge, there's no active studies being backed by industry today." To this, Senator Blumenthal, member of the Commerce, Science, & Transportation Committee, responded, **"So there really is no research ongoing. We're kind of flying blind here, as far as health and safety is concerned."**

EMF SCIENTIST APPEAL

According to an appeal by expert EMF scientists, "Numerous recent scientific publications have shown that RF-EMF affects living organisms at levels well below most international and national guidelines. Effects include increased **cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans.** Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life."



RF FROM SATELLITES

The deployment of 5G and other new internet services will require tens of thousands of additional satellites in low earth orbit. This has already been shown to produce light pollution in the night sky and may produce other health and environmental concerns such as **air pollution, damage to the ozone layer, increasing Earth's albedo, and increasing the overall RF exposure of all living things.**

CHD v. FCC: A HISTORIC WIN

In a historic win for CHD in 2021, a federal court held that the FCC had failed to consider the vast amount of scientific literature on the **cumulative effect of exposure from multiple RF sources, the biological effects of sophisticated modulation and pulsation, oxidative stress and DNA damage, the particular vulnerabilities of children, the negative impacts on nature and wildlife, and the effects on the brain and nervous system, fertility and the electrosensitive.** The court tasked the FCC with providing "...a reasoned explanation for its determination that its guidelines adequately protect against harmful effects of exposure to radiofrequency radiation..."

'Historic Win' by Children's Health Defense in Case Against FCC on Safety Guidelines for 5G and Wireless

Children's Health Defense
August 16, 2021 · 5 min read

Press Event Monday, August 16 at 10 a.m PT / 1 p.m. ET by Zoom

Washington, DC, Aug. 16, 2021 (GLOBE NEWSWIRE) -- Children's Health Defense (CHD) won its historic case against the Federal Communications Commission (FCC) in a landmark decision.

Learn more at:

childrenshealthdefense.org/wireless



REDUCING RADIOFREQUENCY (RF) EXPOSURE AT HOME



POWER OFF YOUR WIFI ROUTER AT NIGHT

Powering down your WiFi router at night can significantly reduce unnecessary RF exposure. **WiFi-enabled devices and routers constantly transmit and receive RF signals** to form an active internet connection which **can disrupt melatonin production** at night and lead to poor quality sleep.

CREATE WIFI-FREE ZONES FOR CHILDREN

Due to their smaller heads, thinner skulls and more conductive brain tissue, **children are particularly vulnerable to RF exposure**. All wireless devices such as tablets, TVs, gaming consoles and baby monitors should be kept out of playrooms, children's bedrooms and wherever they spend the most time.



WIRE YOUR CONNECTION

WiFi-enabled devices and routers constantly transmit and receive RF signals in order to form an active internet connection, using the air as a medium to do so. Connecting to the internet via ethernet cables **eliminates this unnecessary exposure and provides faster internet speeds**.

ACTIVATE AIRPLANE MODE AND DISABLE ALL WIRELESS ANTENNAS

When devices are not in use, every wireless antenna should be disabled to reduce unnecessary RF exposure. Keep in mind that activating airplane mode may not disable every antenna. **Ensure that WiFi, GPS, NFC and Bluetooth antennas are disabled**.



DISTANCE IS KEY

RF exposure from electronic devices such as WiFi routers and smartphones generally decreases with distance from the source. **Ensure the distance between devices and bodies is maximized** e.g. use speakerphone instead of holding the phone up to your head and do not sleep with your phone under your pillow.

LIMIT YOUR TIME

Educate yourself and your family to be conscious about the time spent engaging with wireless devices, especially smartphones. As an alternative, **opt for a landline with a corded phone instead** (yes, the “old-fashioned” kind), and avoid DECT cordless phones as they constantly emit wireless signals.



UNSMART YOUR HOME

Smart devices use RF signals to share information with users and other devices via the internet, increasing your family’s overall RF exposure. **Reduce your exposure by opting out of smart cars, smart meters, smart thermostats, smart doorbells, smart speakers, smart watches, etc.**

AVOID BLUETOOTH DEVICES

The frequencies used by Bluetooth devices are similar to those used by WiFi routers. **Wireless home phones, headphones, keyboards, mice, smartwatches and fitness trackers emit RF radiation close to the body.** Wired alternatives are widely available and should be preferred over wireless options.



- In 2011, the World Health Organization’s (WHO) International Agency for Research on Cancer (IARC) **classified wireless radiation as a Group 2B “Possible Human” carcinogen.** This conclusion was based upon an increased risk of malignant brain cancer (glioma) identified in those who used cell phones for over 10 years for an average of 30 minutes per day.

- **Children, particularly the unborn, are more vulnerable to RF radiation** because of the greater susceptibility of their developing nervous systems. Their brain tissue is more conductive, meaning they absorb more radiation than adults. RF penetration is greater relative to head size, and they will have a longer lifetime of exposure than adults.

- There is strong evidence that long-term exposure to EMFs is a **risk factor for diseases such as certain cancers, Alzheimer’s disease, and male infertility.**

- Cell phone “safety” tests are performed on a mannequin to test the heating effects of wireless radiation of mobile phones. The test involves filling the mannequin’s plastic head with a liquid to determine if it heats up one degree during a 6-minute call. The mannequin is a model of a 100 kg, six-foot tall adult male military recruit – **not representative of the vast majority of the human population, particularly children.**



REDUCING RADIOFREQUENCY (RF) EXPOSURE AT SCHOOL

A pocket guide to educate and encourage your child's school and school board to reduce Radiofrequency (RF) exposure.



CREATE DEDICATED ZONES

Wireless devices transmit RF signals to connect devices via WiFi and Bluetooth. Reduce RF exposure at school by **limiting the use of wireless devices such as smartboards, tablets and laptops in the classroom.** Instead, create technology-specific rooms e.g. computer labs and libraries.

DISABLE WIFI AND SWITCH TO A WIRED CONNECTION

WiFi-enabled devices and routers constantly transmit and receive RF signals in order to form an active internet connection, using the air as a medium to do so. **Connecting to the internet via ethernet cables eliminates this unnecessary exposure and provides faster internet speeds.**



ACTIVATE AIRPLANE MODE AND DISABLE ALL WIRELESS ANTENNAS

When devices are not in use, every wireless antenna should be disabled to reduce unnecessary RF exposure. Keep in mind that activating airplane mode may not disable every antenna. **Ensure that WiFi, GPS, NFC and Bluetooth antennas are disabled.**

DISTANCE IS KEY

RF exposure from electronic devices such as WiFi routers and smartphones generally decreases with distance from the source. **Ensure the distance between devices and bodies is maximized** e.g. cell phones should not be carried on the body and laptops should be used on a desk.



LIMIT TIME SPENT ON DEVICES

Children will likely experience significantly greater RF exposure during the course of their lives compared to adults, and from a younger age. **Limit the amount of time students spend engaging with devices** and educate them to be conscious of their daily usage.



AVOID WIRELESS BLUETOOTH DEVICES

The frequencies used by Bluetooth devices are very similar to those used by WiFi routers. Wireless devices such as Bluetooth headphones, keyboards and mice all emit RF radiation close to the body. **Wired alternatives are widely available and should be preferred over wireless options.**

- Children, particularly the unborn, are more vulnerable to RF radiation than adults due to the greater susceptibility of their developing nervous systems. Their brain tissue is more conductive (meaning they absorb more radiation than adults), **they have thinner skulls (meaning the radiation penetrates more deeply), and they will have a longer exposure over their lifetime.**
- Evidence suggests that exposure to RF radiation is associated with an increased risk of **childhood leukemia, congenital heart disease in infants, behavioral problems in young children, learning and memory reduction in offspring, autism in children and infants, hyperactivity in children, and asthma in offspring.**
- According to some estimates, it affects up to **30% of the population.**
- In 2011, the World Health Organization's (WHO) International Agency for Research on Cancer (IARC) **classified wireless radiation as "possibly carcinogenic to humans."** Their decision was based on a study that identified an increased risk of malignant brain cancer (glioma) in those who used cell phones for an average of 30 minutes per day for 10 years.
- Cell phone "safety" tests are performed on a mannequin to test the heating effects of wireless radiation of mobile phones. The test involves filling the mannequin's plastic head with a liquid to determine if it heats up one degree during a 6-minute call. **The mannequin models a 100 kg, six-foot tall adult male military recruit — not representative of the vast majority of the human population, particularly children.**