

WiFried – Is Wireless Technology Dooming a Generation?

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STORY AT-A-GLANCE

- › According to many experts, chronic, heavy exposure to wireless radiation is likely having severe repercussions for our health, especially that of children, who are now being exposed even before birth
- › While a number of different devices contribute to the overall radiation burden, those kept closest to your body on a regular basis, such as your cellphone, are of greatest concern
- › Your body has natural electromagnetic fields (EMFs), as many of your bodily processes involves the transmission of electric signals, and external interference can disrupt those signals
- › Inside every cell in your body are mitochondria, the power plants of your cell, and they are adversely impacted by EMFs, resulting in mitochondrial and cellular dysfunction
- › Two organs most vulnerable to outside RF interference are your heart and brain. Both also have the highest density of voltage gated calcium channels, which are inappropriately activated by EMFs, thereby causing most of the damage associated with EMF exposure

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Most people today live in a sea of radiofrequencies (RF), emitted from wireless technologies of all kinds, from routers to smartphones, tablets, baby monitors, TVs, appliances, smart meters and more. In the featured ABC program "Wi-Fried," originally

aired in 2016, Maryanne Demasi, Ph.D., investigates the alleged safety of mobile devices.

According to many experts, chronic, heavy exposure could be having severe repercussions for our health, especially that of children, who are now being exposed even before birth.

As noted by Devra Davis, Ph.D., an epidemiologist and author of the book, "Disconnect: The Truth About Cell Phone Radiation," children have never before been exposed to this level of pulsed radiation, and it's still too early to determine the exact extent of the harm. Still, mounting evidence suggests harm is indeed occurring, so it would be foolish to wait until we're in the midst of a global catastrophe.

External Interference Can Disrupt Natural Bioelectric Signals

While a number of different devices contribute to the overall radiation burden, those kept closest to your body on a regular basis, such as your cellphone, are of greatest concern. Worldwide, there are more than 6 billion cellphone subscriptions. In other words, we're rapidly nearing total saturation, where every single person on the planet has one of these devices.

Many of these mobile phones are smartphones, with apps that frequently receive and transmit pulsed electromagnetic signals. The human body also has natural electromagnetic fields (EMFs), as many of your bodily processes involves the transmission of electric signals, and as noted by Demasi, "External interference can disrupt those signals."

In a 2016 article, Jerry Phillips, Ph.D., a biochemist and director of the Excel Science Center at the University of Colorado, explained how living cells react to RF radiation:¹

"The signal couples with ... cells, although nobody really knows what the nature of that coupling is. Some effects of that reaction can be things like movement of calcium across membranes, the production of free radicals or a change in the expression of genes in the cell."

Suddenly important proteins are being expressed at times and places and in amounts that they shouldn't be, and that has a dramatic effect on the function of the cells. And some of these changes are consistent with what's seen when cells undergo conversion from normal to malignant."

When you consider that your body runs on bioelectricity, it's easier to understand how and why biological damage from wireless phones might occur.² For starters, your body has natural EMFs, as many of your bodily processes involves the transmission of electric signals, and external interference can disrupt those signals.

In the past few years, it's become increasingly clear that mitochondrial dysfunction is at the root of most chronic disease, so in terms of public health, the effects of **chronic EMF exposure** may be far more profound than suspected. We may not only face an avalanche of brain cancer in coming decades, but also heart disease, neurological disease and infertility.

Your Heart and Brain Are Most Susceptible to EMF Damage

Two of the organs that are the most vulnerable to outside RF interference are your heart and your brain. Both of these organs also have the highest density of **voltage gated calcium channels** (VGCCs). Research.^{3,4,5,6} by Martin Pall, Ph.D., Professor Emeritus of biochemistry and basic medical sciences at Washington State University,⁷ suggests VGCCs are activated by low-intensity EMFs such as those emitted from cellphones, triggering an excessive influx of calcium into the cell.

The excess intracellular calcium and the increased calcium signaling appears to be responsible for most if not all of the biological effects associated with EMF exposure, which include an increase in:

Neuropsychiatric disorders and diseases such as anxiety,

Hormonal effects

Cardiac effects

depression, ADHD, autism
and Alzheimer's⁸

Chromosomal breaks	Impaired fertility especially in men	Oxidative stress
Changes in calcium signaling	Cellular DNA damage	Breakdown of the blood- brain barrier
Cancer	Melatonin depletion	Sleep disruption

Research Confirms EMF-Induced Health Effects

As early as 1990, before there even was a consumer cellphone industry, at least two dozen epidemiological studies on humans indicated a link between EMF and/or RF and serious health problems, including childhood leukemia. More recently, two government-funded studies^{9,10,11,12,13} — one on mice and one on rats — found evidence of heart tumors and damage to the brain and DNA.

This \$25 million research, conducted by the National Toxicology Program — an interagency research program housed at the National Institute of Environmental Health Sciences — is said to be the most extensive to date, and it confirms that the heart and brain are key areas affected by high, chronic EMF exposure.

Earlier research¹⁴ by Allan Frey, Office of Naval Research, also revealed cellphone radiation weakens cell membranes, including your blood-brain barrier, placing your brain at further increased risk by allowing systemic toxins to enter.

Male testes are a third area with high VGCC density, and indeed, studies have linked EMF exposure to male fertility problems as well. Cellphone radiation has been linked to a reduction in sperm motility and viability,^{15,16} and Wi-Fi equipped laptops have been linked to sperm DNA fragmentation after just four hours of use.¹⁷

Disturbingly, most people will carry their cellphones either in their breast pocket or pants pocket, effectively radiating the most sensitive parts of their body – their heart and reproductive organs. Then, when talking on the phone, they will place it to their ear, exposing their brain.

Pregnant women are also exposing their unborn children to harmful radiation when carrying a cellphone on their body, or using it near their body. According to research, prenatal exposure to power-frequency fields can nearly triple a pregnant woman's risk of miscarriage.¹⁸ Several other studies have also linked prenatal EMF exposure to an increased risk of miscarriage.^{19,20,21,22,23}

Why We're Not Seeing Dramatic Increases in Brain Cancer

With regard to brain cancer, it's important to remember that brain cancer typically has a long latency period. According to Davis, it took 40 years before the brain cancer rate in the Japanese population spiked after the atomic bomb was dropped on Hiroshima. Compared to radioactive radiation, RF is likely far less carcinogenic, but the fact that we have not seen a dramatic increase in brain cancer rates as of yet is by no means proof that flooding your brain with RFs is harmless.

It simply means we haven't been using cellphones long enough yet. In my view, it seems really foolish to make such a gamble with entire generations of people. Davis also points out that if you want to get an indication of how cellphone use is influencing brain cancer rates, you have to look at the types of brain tumors that have become predominant, and the groups in which they occur.

In more recent years, we have in fact seen a statistically significant uptick in brain cancer in younger people and children. We've also seen an increase in tumors situated near the ear on the side people hold their phones.

Most People Breach the Safety Limits of Their Cellphones

Also noted in the featured video is that anytime you carry your phone on your body and it is not in airplane mode, you are, breaching the safety limits of your phone. This safety limit, known as the specific absorption rate (SAR), is typically buried in the legal section of your phone, but will state that you need to keep the phone at a specified distance from your body to prevent overexposure and potential heat damage.

Demasi's cellphone specified a safety limit of 10 millimeters, meaning she would need to keep it at least 1 centimeter from her body at all times. So, it's important to realize that your cellphone no longer complies with safety regulations once it's placed in your pocket or bra. It's also worth noting that the Federal Communications Commission (FCC) bases its thermal safety standards on a model that does not apply to the population at large, especially not children.

The standards are based on a model called "standard anthropomorphic man," a model much larger than the average person. The larger the body, the shallower the penetration of the radiation, so SAR levels are likely too generous for most people. The experts interviewed believe it's safe to say that most people breach the SAR limits of their phones on a daily basis, possibly exposing themselves to heat-induced cell damage.

However, it's important to realize that the SAR value of your phone is worthless when it comes to assessing the safety of your phone, as the most significant damage is not caused by heating. In reality, there's no such thing as a safe cellphone, as they all emit EMFs.

The only way to make it safe is to turn it off, or keep it in airplane mode, which suspends RF signal transmissions. Pall calculates that the safety standards based on thermal damage, not molecular biology, are off by a factor of 7 million.

As noted in the video, safety standards are based on the decades old and now-debunked theory that no damage can occur unless the tissue is heated, but mounting evidence strongly suggests this simply isn't true, and a number of different mechanisms of harm have been presented in the scientific literature.

Two Crucial Ways EMFs Harm Your Health

There's even evidence suggesting that radiation affects your microbiome, turning what might otherwise be beneficial microbes pathogenic. This too can have far-ranging health effects, since we now know your microbiome plays an important role in health. Importantly, while the mechanisms may differ, the end result is often the same. In short, EMFs:

1. Increase oxidative stress, which can damage cell membranes and proteins, and break DNA bonds
2. Decrease ATP – the energy currency in your body, without which your cells cannot function properly

Protecting Yourself and Your Children From Excessive EMF

As of September 2018, France will impose a complete ban on cellphone use by primary and secondary school students during school hours.²⁴ Students will not be permitted to use their phones even at breaks, lunch or between classes. California also issued consumer guidance on how to lower cellphone radiation exposure (after initially trying to cover up the hazards).²⁵

Russia has also implemented laws to minimize Wi-Fi exposure in schools,²⁶ and countries like Switzerland, Italy, Austria, Luxembourg, Bulgaria, Poland, Hungary, Israel and China have RF exposure limits that are up to 10,000 times lower than the U.S.²⁷

In my mind, EMF exposure is unquestionably a significant health hazard that needs to be addressed if you're concerned about your health. Schools, especially, really should take a step back and begin to implement strategies to protect students. There's simply no reason to flood children with wireless signals all day long.

In the featured video, an Australian school simply installed an on/off switch on the router in each classroom. Unless online access is required for a particular lesson, the

Wi-Fi is turned off. If you have Wi-Fi in your home, I would recommend implementing a similar strategy at home.

Helpful Strategies to Reduce Your EMF Exposure

Here are several other suggestions that will also 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 and opt for 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, use an EMF meter to determine if you also need to power down the adjacent room.

Use a battery-powered alarm clock, ideally one without any light. I use a talking clock for the visually impaired.²⁸

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%.²⁹

Consider moving your baby's bed into your bedroom 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.³⁰

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.

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