

# Why Wi-Fi, Bluetooth, Cellphones Are Damaging to Cells

## EMF: The Invisible Hazard (Part 3)

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In this series, we will explore the invisible yet omnipresent electromagnetic fields from common home electronics to 5G and their potential impact on health.

As mysterious cases of microwave syndrome continue to surface, growing doubts are emerging over the harm caused by 4G, 5G, and other electromagnetic fields (EMFs). However, many people do not know that EMF is an essential element our bodies need, like water and air.

### What Exactly Is Electromagnetic Radiation?

Electromagnetic radiation, also known as electromagnetic fields or EMFs, is one of the four fundamental forces of nature, along with gravity, strong nuclear, and weak nuclear forces. It is an invisible “force” that exists everywhere, created by electric charges and magnetic waves.

EMFs encompass all light and lifeforms ([pdf](#)). Humans emit electromagnetic radiation, too, such as heat, which can be detected using infrared cameras.

There are different types of EMFs.

### [Eddie by Giddy](#)

EMFs with lower frequencies than the visible light spectrum are nonionizing radiation. These EMFs include electricity in powerlines, radiofrequency radiation (including microwave radiation), and infrared radiation.

Nonionizing radiation is usually considered safe for humans since it cannot remove electrons from atoms and molecules that make up cells. Electron removal can damage DNA, which [puts cells at risk of cancer](#).

On the other hand, ionizing radiation, EMFs with higher frequencies, have more energy and can remove electrons. These include ultraviolet lights, X-rays, and gamma rays. Prolonged exposure to them may lead to cancer.

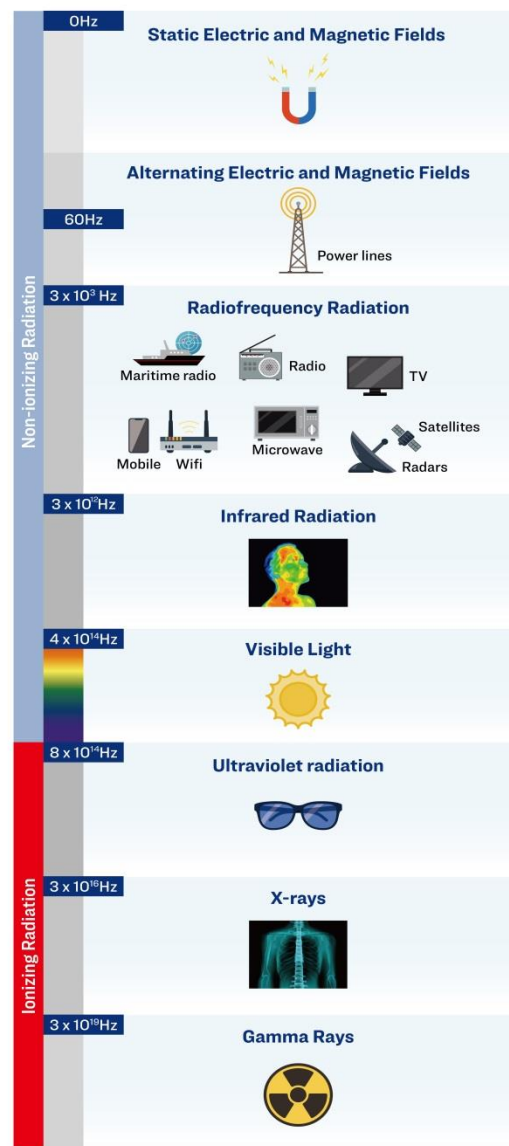
### The Electromagnetic Spectrum (The Epoch Times)

#### Harmful in Another Way

Among the “safe” EMFs, research suggests that radiofrequency EMFs—which are often manmade—may be able to cause adverse health effects even without electron removal.

Radiofrequency EMFs, most commonly released by phones, Wi-Fi, smart electronics, Bluetooth devices, and TVs, affect the vibration of charged particles inside the body, causing them to change trajectories.

## The Electromagnetic Spectrum



Emeritus professor Martin Pall from Washington State University [theorizes that](#) these fields can alter the electric environment around voltage-gated calcium channels residing in cellular surfaces. The channels can then open up, causing a sudden influx of calcium ions.

This can lead to oxidative stress inside cells and cause DNA damage, cellular damage, inflammation, cell death, and other associated pathologies.

Mr. Pall put forward this theory after observing that drugs that block these voltage-gated calcium channels could also block EMF activity. Later cell studies have shown that EMFs can [both inhibit](#) and [activate voltage-gated calcium channels](#), which would affect an even greater scope of potential cellular activities.

On the other hand, natural EMFs like fire and light primarily generate thermal effects and damage the body through heat.

“We’re talking about two almost completely different things,” Mr. Pall said.

Artificial vs. Natural EMFs

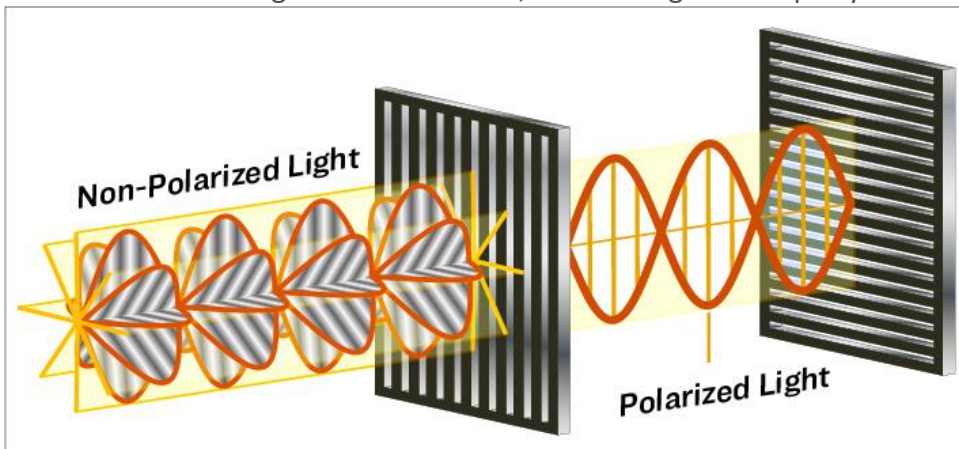
### 1. Artificial EMFs Are Polarized, Have More Robust Impact

Polarization [is a crucial difference](#) between natural EMFs and artificial EMFs.

Radiofrequency EMFs are polarized. They can have a more substantial biological effect since all of their electromagnetic waves travel in a uniform orientation.

“They behave basically as one object,” Mr. Pall explained.

Conversely, naturally occurring EMFs radiate incoherent energy that essentially cancels out. For instance, fire emits heat and light in all directions, distributing EMFs equally across its surroundings.



(Fouad A. Saad/Shutterstock)

### 2. Natural EMFs Can Have Healing Effects, Are Body Essentials

Some natural EMFs can even heal the human body.

Global lightning discharges produce oscillating EMFs in the Earth’s atmosphere, known as Schumann resonances. The frequency of human brain waves is [highly correlated](#) to Schumann resonances, and therapeutics using these resonances have been shown to [help with sleep](#). Some scientists suspect that the space sickness ([pdf](#)) astronauts experience in outer space may be related to this deprivation of Schumann resonances.

Sunlight also generates beneficial EMFs like infrared light, which improves mitochondrial function and helps boost the circadian rhythm.

“We [humans] are actually electromagnetic beings,” professor Magda Havas from Trent University told The Epoch Times. “Just like there are essential nutrients, there are essential frequencies that we also need.” The human ears cannot hear these pulses, but the body responds to them.

Therapeutic devices emitting pulsed EMFs, mimicking natural pulses, have been [used for bone healing](#) and improving blood flow. Transcranial brain stimulation (TMS) is a therapy that releases [transient magnetic pulses in the brain](#) and has been used to treat mental illnesses.

### 3. Telecommunicating EMFs Pulsate, Causing Damage

While natural EMFs release smooth, continuous waves, most radiofrequency EMF waves are erratic, pulsating, and potentially damaging (some radiofrequency EMFs, such as analog radios, emit continuous waves which are potentially less damaging).

“It’s like noise versus music,” Ms. Havas said.

Studies on potential health concerns involving radars, which release pulsating radio frequencies, [started surfacing in the mid-1900s](#). One report on [military personnel](#) who worked with radar found that these people tend to have lower levels of circulating immune cells, with signs of [cell and DNA damage](#).

Accidental and overexposure to radar have left [military workers complaining](#) of headaches, nausea, fatigue, malaise, and palpitations, which cannot be conclusively determined to be anxiety-related.

Exposure to [2G, 3G, 4G](#), and [Wi-Fi](#) has also been linked to oxidative stress, [inflammation](#), cellular damage, [and cell death](#) in animal and human cell studies ([pdf](#)).

These telecommunications are “like [listening to] a jackhammer,” Ms. Havas said.

They use pulses to transmit data to mobile phones, Wi-Fi-enabled devices, and Bluetooth devices. As these devices constantly need to check for connections with nearby antennas, cellphone towers, and Wi-Fi routers, pulsing EMFs are sent forth 24 hours a day, 365 days a year.

The strength of the pulses can vary based on telecommunication activity. When network signals are weak, or when we make phone calls inside elevators, the power of the pulses increases.

Stronger pulses may not necessarily mean greater harm. “[Studies have shown](#) a specific range of intensities produces maximum biological effects,” Mr. Pall said.

However, the more pulses sent out, the higher the likelihood of potential biological effects. Higher-frequency networks, like 5G and 4G, produce more pulses than 3G and 2G.

Current Industry Standards Biologically ‘Irrelevant’

According to industry standards, our bodies must not exceed an exposure of [1.6 watts per kilogram](#), averaged over any 1 gram of tissue, over a [30-minute period](#). This safety standard set by the U.S. Federal Communications Commission (FCC) has [remained unchanged since 1996](#).

However, most smartphone users already exceed this daily safety standard by keeping their phones in their pockets, wearing them in their bras, or holding them next to their ears during calls.

Moreover, Mr. Pall said, the current FCC standard, which considers average intensity over a few minutes, is irrelevant to biology.

While specific intensities of EMF may last only nanoseconds, they may still pose significant biological effects, Mr. Pall pointed out. Given this characteristic, it is more meaningful to determine intensity peaks rather than average values.

It’s like saying a bullet is not deadly if you average its force over half an hour, he said.

“You go to the regulatory agency and say, ‘I’m afraid I’m gonna get shot by a high-powered rifle,’” Mr. Pall said as an example, “and their response to you is, ‘Oh, you don’t need to worry about it. Because if you average the forces on your body over a six-minute period or a 30-minute period, the average intensity is dropped by a factor of 100 million or whatever, so it can’t possibly do anything.’”