# Science On Cell Towers & Health

## The Majority of Cell Tower Studies Report Effects

A review on people living near cell towers published in ***Environmental Health* by Balmori (2022)** found the majority of studies reported impacts from exposure, primarily radiofrequency sickness, cancer, and altered biochemical markers.

## Cancer

Multiple epidemiological studies on cell towers report increased cancer incidence and mortality among populations living close to cell towers. Elevated risks have been observed for a range of cancers, including breast, lung, leukemia, and childhood neoplasms. Studies have reported biochemical changes in the blood predictive of cancer risk.

## Genetic and DNA Damage

Genetic effects have been observed in people living near towers, and studies have reported increased DNA strand breaks, chromosomal aberrations, and micronuclei.

## Hormonal and Metabolic Effects

Long-term exposure has been linked to endocrine system impacts, including altered levels of thyroid, reproductive, and stress hormones. A study on students found those with higher RF exposures due to nearby cell antennas had elevated levels of blood sugar marker HbA1c and increased risk of type 2 diabetes mellitus.

## Neuropsychiatric and Cognitive Symptoms

Residents living close to towers report more health issues, including headaches, sleep disturbances, fatigue, irritability, memory problems, and difficulty concentrating. Case reports describe “microwave syndrome” symptoms in individuals exposed to newer 5G infrastructure. Research has also linked cell tower RFR to poorer attention and impaired cognitive performance.

**Scientific research studies at this link*

# Scientific Research on Cell Tower Radiation

Over the past five decades, many studies have investigated the health effects of cell tower radiation on people living near transmitting antennas. Although findings are not always uniform, a substantial body of credible scientific research reports biological and health effects. Below is a selection of studies that report such effects.

## Key Reviews

| AUTHOR | JOURNAL | MAIN FINDING |
|---|---|---|
| **Balmori (2022)** | Environmental Research | Global review of research on people living near cell towers found the majority of studies (73.6%) reported health impacts, primarily radiofrequency sickness (73.9%), cancer (76.9% ), and altered biochemical markers (75.0%). |
| **Pearce (2024)** | Environmental Research | Cellular phone base stations density & power output is increasing human RF radiation exposure. There is enough medical and scientific evidence to warrant long-term liability concerns. To protect cell phone tower firms, companies should minimize human exposure by locating facilities at least 500m away from the population. |
| **Health Impact of 5G** 2021 Report | European Parliament Study Service | Long used RF radiation frequencies (450–6000 MHz) for 5G and wireless networks are likely carcinogenic to humans and may harm male fertility and early developmental stages such as embryos and newborns. |
| **Roda and Perry (2014)** | Environmental Science and Policy | Reviewed the issue within a human rights framework and concluded that the accumulating science indicates safety is not assured and a precautionary approach is best suited to fulfill States' obligations under international human rights law. |
| **Khurana (2011)** | International Journal of Occupational and Environmental Health | Review found 8 of 10 epidemiological studies showed adverse symptoms within 500 meters of mobile phone base stations. |
| **Levitt & Lai (2010)** | Environmental Reviews | Review of studies found ~80% reported biological effects. Biological effects documented at very low intensities comparable to exposures within 200 to 500 ft of a cell tower include: genetic, growth, and reproductive impacts; increases in permeability of the blood–brain barrier; behavioral impacts; molecular, cellular, and metabolic impacts; and increases in cancer risk. |

*Click on the author name to go directly to the published study*

# Scientific Research on Cell Tower Radiation

## Cancer in People Living Near Cell Towers

| AUTHOR | JOURNAL | MAIN FINDING |
|---|---|---|
| Rodrigues et al. (2021) | International Journal of Environmental Research and Public Health | Higher cancer mortality, especially breast, cervix, lung, and esophageal cancers. |
| Li et al. (2012) | Science of the Total Environment | Increased risk of benign and malignant neoplasms in children with higher exposures. |
| Yakymenko (2011) | Experimental Oncology | Review of epidemiological and experimental data found increased cancer risk supported by studies reporting metabolic changes and the overproduction of reactive oxygen species. |
| Dode (2011) | Science of the Total Environment | Elevated cancer mortality rate within 500 meters of cell towers. The closer to the tower, the higher the mortality rate. |
| Eger & Neppe (2009) | Umwelt-Medizin-Gesellschaft | Increased cancer incidence within 400 meters after 5 years of exposure. |
| Eger et al. (2004) | Umwelt-Medizin-Gesellschaft | Higher cancer rates within 400 meters; earlier onset by ~8 years. |
| Wolf & Wolf (2004) | International Journal of Cancer Prevention | Increased cancer incidence near transmitter - 4.15 times more cases than in the entire population. |
| Michelozzi et al. (1998) | American Journal of Epidemiology | Increased childhood leukemia and increased leukemia mortality. Risk decreased with distance. |

**A rapidly expanding body of peer-reviewed research demonstrates that RF radiation from wireless infrastructure, including cellular towers and 5G small cell towers, can produce harmful effects at levels far below current FCC limits.**

**- International Commission on the Biological Effects of Electromagnetic Fields (ICBE-EMF)**
***Letter to U.S. House and Senate* (2026)**

*Click on the author name to go directly to the published study*

# Scientific Research on Cell Tower Radiation

## Systemic Biological Effects

| AUTHOR | JOURNAL | MAIN FINDING |
|---|---|---|
| Laldinpuii et al. (2026) | Electromagnetic Biology and Medicine | Higher RF-EMF is associated with statistically significant alterations in several hematological parameters, including total leukocyte count (TLC), basophils, monocytes, and lymphocytes. |
| Gulati et al. (2024) | Ecotoxicology and Environmental Safety | Increased chromosomal aberrations, which are key indicators of genetic damage. |
| Zothansiama et al. (2017) | Electromagnetic Biology and Medicine | Antioxidant levels (glutathione, catalase, superoxide dismutase) decreased. Oxidative stress and DNA damage markers increased. Increased micronucleus frequency changes, which are predictive of cancer. |
| Meo (2015) | International Journal of Environmental Research and Public Health | Higher school exposure to cell tower RF radiation associated with elevated glycated hemoglobin (HbA1c) and increased risk of type 2 diabetes. |
| Gandhi et al. (2014) | Electromagnetic Biology and Medicine | Elevated DNA damage within 300 meters; proximity predicted damage. |
| Eskander et al. (2011) | Clinical Biochemistry | Long-term exposure linked to impacts to the endocrine system and decreased ACTH, cortisol, thyroid hormones, prolactin and testosterone. |
| Buchner (2011) | Umwelt-Medizin-Gesellschaft | The stress hormones adrenaline and noradrenaline increased significantly during the first six months of transmitter activation. |

**Many biological effects have been documented at very low intensities comparable to what the population experiences within 200 to 500 ft (~60–150 m) of a cell tower, including effects that occurred in studies of cell cultures and animals after exposures to low-intensity RFR. Effects reported include: genetic, growth, and reproductive; increases in permeability of the blood–brain barrier; behavioral; molecular, cellular, and metabolic; and increases in cancer risk.**

**- Levitt & Lai (2010)**
***Environmental Reviews***

*Click on the author's name to go directly to the published study.*

# Scientific Research on Cell Tower Radiation

## Neurological, Cognitive & Behavioral Effects

| AUTHOR | JOURNAL | MAIN FINDING |
|---|---|---|
| Salio et al. (2025) | Electromagnetic Biology and Medicine | Increased mood-energy, cognitive-sensory, inflammatory, and anatomical symptoms within 300 meters. |
| Hardell & Nilsson (2024) | Reviews on Environmental Health | Seven case reports of microwave syndrome symptoms near 5G antennas. Symptoms declined or disappeared when persons moved away. |
| Meo et al. (2018) | American Journal of Men's Health | Delayed fine and gross motor skills, spatial working memory, and attention in adolescents exposed in schools near antennas. |
| Calvente et al. (2016) | Bioelectromagnetics | Lower verbal scores and higher emotional issues in boys (9–11 years) in areas with higher RF radiation. |
| Abdel-Rassoul et al. (2007) | Neurotoxicology | Increased headaches, memory changes, sleep disturbances and reduced attention performance. |
| Hutter et al. (2006) | Occupational and Environmental Medicine | Headaches and cognitive changes. |
| Kolodynski & Kolodynska (1996) | Summarized in National Academies Press | Impairments in motor function, memory, attention, and reaction times in exposed children. |

> **High exposure to RF-EMF produced by MPBSTs [cell towers and cellular network base station antennas] was associated with delayed fine and gross motor skills, spatial working memory, and attention in school adolescents compared to students who were exposed to low RF-EMF.**
>
> -Meo et al. (2018)
> ***American Journal of Men's Health***

*Click on the author's name to go directly to the published study*

# Scientific Research on Cell Tower Radiation

## General Health Symptoms

| AUTHOR | JOURNAL | MAIN FINDING |
|---|---|---|
| López (2021) | Environmental Research | Headaches, dizziness, and decreased sleep. |
| Gomez-Perretta et al. (2013) | BMJ Open (formerly British Medical Journal) | Fatigue, irritability, poor concentration and sleep disturbance. |
| Singh et al. (2016) | Journal of International Society of Preventive and Community Dentistry | More sleep disturbances, headaches, concentration difficulties and reduced salivary secretion in people living closer to antennas. |
| Pachuau & Pachuaua (2016) | International Journal of Applied Physics and Mathematics | Higher health complaints correlated with higher exposures from nearby antennas. |
| Bortkiewicz et al. (2004) | Medycyna Pracy | Increased health complaints including circulatory system, sleep disturbances, irritability, concentration difficulties and depression correlated with proximity. |
| Santini et al. (2003) | Electromagnetic Biology and Medicine | Higher nausea, loss of appetite, sleep disturbance, decreased libido, and headaches within 200m of towers. |
| Navarro et al. (2003) | Electromagnetic Biology and Medicine | Symptom severity correlated with higher measured power density or RF radiation emitted from antennas. |

**More people who lived closer to base stations [cell tower antennas] reported health symptoms in all of the health categories investigated. Relatively fewer people who lived further away reported symptoms...The most significant contributor to the number of symptoms reported by residents was the strength of RF-EMF to which they were exposed in their home.**

**-Salio et al. (2025) *Electromagnetic Biology and Medicine***

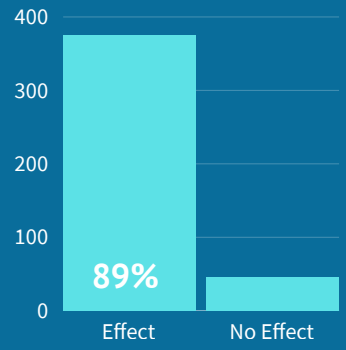
*Click on the author name to go directly to the published study*

# The Majority of Wireless Radiation Studies Report Effects on Key Endpoints

Dr. Henry Lai, bioengineering professor emeritus at the University of Washington and editor-in-chief of *Electromagnetic Biology and Medicine*, finds the majority of research over the last few decades reports effects from RF exposure.

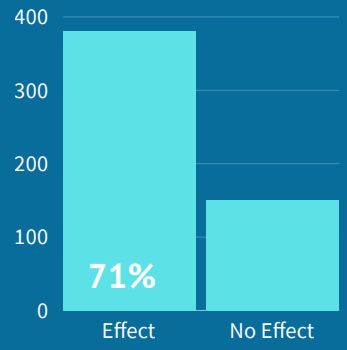
### Oxidative

Effects in 375 of 420 studies since 1997



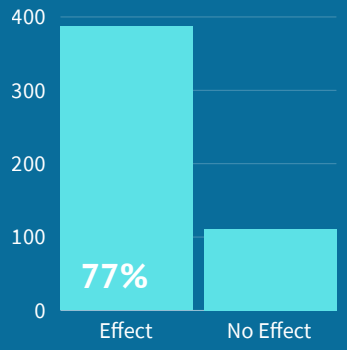

### Genetic

Effects in 381 of 531 studies since 1990



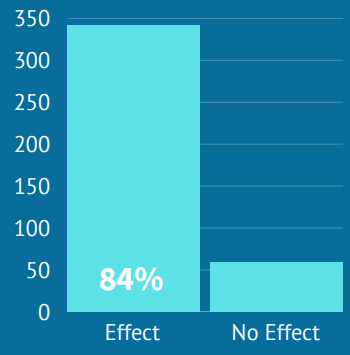

### Neurological

Effects in 387 of 498 studies since 2007




### Reproduction & Development

Effects in 342 of 401 studies since 1990




***"This means that biological systems are very sensitive to RFR."***

***"It is clear that the current RFR exposure guidelines do not prevent the detrimental health effects of RFR."***

***-Dr. Henry Lai***

**Dr. Lai's research compilations, last partial update: December 7, 2025 ,**
**from the SAFEREMR.com website of Dr. Joel Moskowitz, University of California, Berkeley**

## The International Commission on Biological Effects of Electromagnetic Fields (ICBE-EMF)

"The past 25 years of extensive research on RFR demonstrates that the assumptions underlying the FCC's and ICNIRP's exposure limits are invalid and continue to present a public health harm. Adverse effects observed at exposures below the assumed threshold SAR include non-thermal induction of reactive oxygen species, DNA damage, cardiomyopathy, carcinogenicity, sperm damage, and neurological effects, including electromagnetic hypersensitivity. Also, multiple human studies have found statistically significant associations between RFR exposure and increased brain and thyroid cancer risk."

- ICBE-EMF in the paper "Scientific evidence invalidates health assumptions underlying the FCC and ICNIRP exposure limit determinations for radiofrequency radiation: implications for 5G" *Environmental Health* (2022)