

# Study: Phone Radiation Kills Cheek Cells

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## STORY AT-A-GLANCE

- › A controlled study found cellphone radiation causes acute cell death and disrupted cell division in cheek cells, with a 57% increase in cell death indicators after high exposure
- › Long-term cellphone use (over 1,000 cumulative hours) increases tumor risk by 60%, with risks rising after 10+ years of use
- › Cellphone radiation may impair cognitive abilities, disrupt mood regulation and increase risks of neurodegenerative disorders and psychiatric conditions like anxiety and depression
- › People living near cell towers show higher rates of chromosomal aberrations, indicating genetic instability and increased cancer risk over time
- › To minimize EMF exposure, use wired connections, avoid wireless devices, turn off Wi-Fi when not in use and keep cellphones away from your body

A groundbreaking study has provided compelling evidence that radiation from cellphones can damage cells in your cheeks.<sup>1</sup> Unlike previous research relying on questionnaires, this intervention trial carefully controlled exposure conditions.

Participants used specially designed headsets that delivered precise doses of Universal Mobile Telecommunications System (UMTS) 3G signal radiation to one cheek for two hours daily over five days. Researchers then examined cheek cells before exposure and three weeks after, looking for various signs of damage.

The results are concerning – while no chromosomal damage was observed, there were clear indications of cell death and disrupted cell division, especially at higher radiation levels. This suggests that pressing a phone against your cheek for extended periods could be harming the delicate tissues inside your mouth.

The study's controlled nature and use of DNA-specific staining techniques lend significant weight to its findings, addressing limitations of earlier research.

## **Cellphone Radiation Led to Acute Cell Death and Disrupted Cell Division**

The study revealed two primary effects of cellphone radiation on cheek cells. First, there was a significant increase in karyorrhectic cells – those showing fragmented nuclei indicative of cell death. This effect was dose-dependent, with a 57% increase observed in the high-exposure group.<sup>2</sup>

Additionally, researchers noted more cells with condensed chromatin on the directly exposed side, another sign of impending cell death. Second, the number of binucleated cells increased by 28% after exposure, pointing to disrupted cell division. These binucleated cells occur when the final stage of cell division (cytokinesis) fails to complete properly. Both findings suggest that cellphone radiation interferes with normal cellular processes in your cheek tissue.

While your body can often replace damaged cells, frequent exposure could overwhelm these repair mechanisms. These acute effects were observed after just one week of controlled exposure, raising questions about the long-term impact of regular cellphone use directly against your face.

## **Mechanisms of Cellular Harm**

According to the study, the observed cell death and division abnormalities could result from several mechanisms.<sup>3</sup> Radiation may interfere with your cells' cytoskeleton, which

is the internal scaffolding crucial for proper division. It might also activate certain cellular pathways, like p38 MAPK, which can trigger cell death processes.

Additionally, the radiation could potentially cause oxidative stress or inflammatory responses in the tissue. These effects, over time, might contribute to more serious health concerns. It's important to note that while this study used 3G signals, **newer technologies like 5G** operate at different frequencies and may have distinct damaging biological effects.

While the researchers emphasized that their findings don't directly prove cancer risk, they do demonstrate clear cellular stress from cellphone radiation<sup>4</sup> — a significant cause for caution in how you use your device.

## **Long-Term Cellphone Use Increases Tumor Risk by 60%**

While short-term cell phone use may not show clear dangers, long-term and heavy use paints a concerning picture. A systematic review and meta-analysis revealed that using a cellphone for over 1,000 cumulative hours in your lifetime — equivalent to just 17 minutes per day over 10 years — increased tumor risk by a striking 60%.<sup>5</sup>

The risk also increased with longer latency periods between first use and tumor diagnosis. For latency of 10 or more years, research showed a 62% increased tumor risk.<sup>6</sup> These results suggest that the dangers of cellphone radiation may take years to manifest, making it crucial to limit your exposure now.

While some of the studies included in the meta-analysis had conflicting results, when analyzing only high-quality studies across all groups, a marginally significant increased tumor risk emerged. This underscores the importance of considering study design and potential biases when interpreting research on cellphone safety.

As a consumer, you should be aware that **industry-funded studies** may downplay risks, while independent research often reveals more cause for concern. Always look for high-quality, unbiased sources when evaluating the safety of your cellphone use.

Given the findings, consider using speakerphone or a wired headset to keep the phone away from your head, and be especially mindful of children's use, as their developing bodies may be more vulnerable to these effects.

## **Beyond Brain Tumors: A Wider Range of Health Concerns**

While much of the focus has been on brain tumors, this meta-analysis included studies on a variety of tumor types.<sup>7</sup> Although not all results were statistically significant, increased risks were observed for malignant brain tumors, head and neck cancers, and other tumor types in some analyses. This suggests that cellphone radiation's effects may not be limited to the brain.

The study also touches on potential biological mechanisms beyond simple heating effects, including oxidative **DNA damage** and alterations in protein structure and expression. These findings align with a growing body of research indicating that non-ionizing radiation from cellphones may have widespread biological effects.

For instance, a 2023 study noted that men who used their cellphones more than 20 times a day had significantly lower sperm counts compared to men who only used their phones once a week or less. In the case of women, electromagnetic field (EMF) exposure can increase the risk of miscarriage.<sup>8</sup>

Further, continuous exposure to radiofrequency radiation (RFR) from cellphones operating at 2115 MHz for eight hours was found to have detrimental effects on the brain.<sup>9</sup> This exposure led to increased lipid peroxidation, formation of carbon-centered lipid radicals and damage to single-strand DNA. As a result, researchers observed reduced neurogenesis (the formation of new neurons) in the hippocampus and neuronal degeneration in the dentate gyrus.

What this means is that prolonged cellphone radiation exposure may have several negative impacts on cognitive function and mental health. Potential consequences include:<sup>10</sup>

1. Impaired cognitive abilities

2. Changes in behavior
3. Disrupted mood regulation
4. Increased risk of neurodegenerative disorders (due to oxidative stress in neurons)
5. Higher likelihood of developing psychiatric conditions, particularly anxiety and depression

## **Chromosomal Aberrations: A Smoking Gun for Cell Tower Risks**

Research has also uncovered a troubling link between living near cellphone towers and genetic damage. A study in Germany found that people residing close to cellphone base stations had significantly higher rates of chromosomal aberrations in their blood cells compared to those living farther away.<sup>11</sup>

These aberrations included dicentric chromosomes, chromatid gaps and DNA fragments – all indicators of genetic instability that can increase cancer risk over time. The closer people lived to cell towers, the more chromosomal damage was observed.<sup>12</sup>

This provides compelling biological evidence to support previous ecological studies that found increased cancer rates near cell towers. Living in proximity to cell towers for extended periods may pose serious long-term health risks, even at radiation levels well below current safety limits.

## **Living Near a Cell Tower Linked to Oxidative Stress and DNA Lesions**

The study also examined other markers of cellular damage from cell tower radiation. While not statistically significant, there were trends toward increased oxidative stress and DNA lesions in the exposed group.<sup>13</sup> This aligns with previous research showing non-thermal effects of radiofrequency radiation, including the production of harmful free radicals.

Interestingly, the study didn't find evidence of increased DNA double-strand breaks or micronuclei formation in the exposed group. This could indicate that at lower exposure levels, your body's DNA repair mechanisms may be able to handle some of the damage.

However, the accumulation of chromosomal aberrations suggests these repair processes become overwhelmed over time with chronic exposure. The findings highlight the complex biological effects of long-term, low-level radiofrequency radiation exposure and the need for more research on how it impacts cellular function over extended periods.

## **Implications for Current Safety Standards**

The chromosomal damage observed in this study occurred at radiofrequency (RF) exposure levels well below current safety limits. When researchers calculated an equivalent ionizing radiation dose based on the chromosomal aberrations, they found it far exceeded the yearly public exposure limit for ionizing radiation.

As such, current RF exposure guidelines may be inadequate to protect against long-term genetic damage. The study also found no threshold effect – chromosomal aberrations increased in correlation with cell tower signal strength, calling into question the assumption that there is a safe level of RF exposure below which no biological effects occur.

This adds to the growing body of evidence that non-thermal biological effects need to be considered when setting RF exposure limits. Further, there's an urgent need for more research on chronic, low-level RF exposure to ensure that rapidly expanding wireless networks are not putting public health at risk.

## **Tips for Minimizing Your EMF Exposure**

Exposure to radiofrequency electromagnetic fields from cellphones and other sources poses a substantial health risk that requires attention if you're prioritizing your well-being. To address this issue, consider implementing the following strategies. These

measures can help decrease your EMF exposure and lessen the harmful effects of these unavoidable exposures:

Identify major sources of EMF, such as your cellphone, cordless phones, Wi-Fi routers, Bluetooth headsets and other Bluetooth-equipped items, wireless mice, keyboards, smart thermostats, baby monitors, smart meters and the microwave in your kitchen. Ideally, address each source and determine how you can best limit their use.

Barring a life-threatening emergency, children should not use a cellphone or a wireless device of any type. Children are far more vulnerable to cellphone radiation than adults due to having thinner skull bones.

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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. Opt for the wired versions.

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If you must use Wi-Fi, shut it off when not in use, especially at night when you're 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.

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Avoid using wireless chargers for your cellphone, as they too will increase EMFs throughout your home. Wireless charging is also far less energy efficient than using a dongle attached to a power plug, as it draws continuous power (and emits EMF) whether you're using it or not.

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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, you will need to use a meter to determine if you also need to turn off power in the adjacent room.

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Use a battery-powered alarm clock, ideally one without any light.

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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.

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Avoid using "smart" appliances and thermostats that depend on wireless signaling. This includes all "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.

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Refuse a smart meter on your home 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%.

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Consider moving your baby's bed into your room instead of using a wireless baby monitor. Alternatively, use a hard-wired monitor.

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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.

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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.<sup>14</sup>

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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. Instead, use VoIP software phones that you can use while connected to the internet via a wired connection.

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Avoid using your cellphone and other electronic devices at least an hour (preferably several) before bed, as the blue light from the screen and EMFs both inhibit melatonin production.<sup>15</sup> Research also clearly shows that heavy computer and cellphone users are more prone to insomnia.<sup>16</sup>

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The effects of EMFs are reduced by calcium-channel blockers, so make sure you're getting enough magnesium. Most people are deficient in magnesium, which will



worsen the impact of EMFs. As previously noted by [EMF expert Dr. Martin Pall](#):

*"When you're deficient in magnesium, you get excessive activity of the VGCCs. You also get excessive calcium influx through the N-methyl-D-aspartate receptor, caused by magnesium deficiency, which is also problematic, so it's important to allay that deficiency."*

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Pall has also published a paper<sup>17</sup> suggesting that raising your level of Nrf2 may help ameliorate EMF damage. One simple way to activate Nrf2 is to consume Nrf2-boosting food compounds. Examples include sulforaphane-containing cruciferous vegetables, foods high in phenolic antioxidants, carotenoids (especially lycopene), sulfur compounds from allium vegetables, isothiocyanates from the cabbage group, and terpenoid-rich foods.

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[Molecular hydrogen](#) has been shown to target free radicals produced in response to radiation, such as peroxynitrites. Studies have shown molecular hydrogen can mitigate about 80% of this damage.<sup>18</sup>

Molecular hydrogen will also activate Nrf2, a biological hormetic that upregulates superoxide dismutase, catalase and all the other beneficial intercellular antioxidants. This in turn lowers inflammation, improves your mitochondrial function and stimulates mitochondrial biogenesis.

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## Sources and References

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