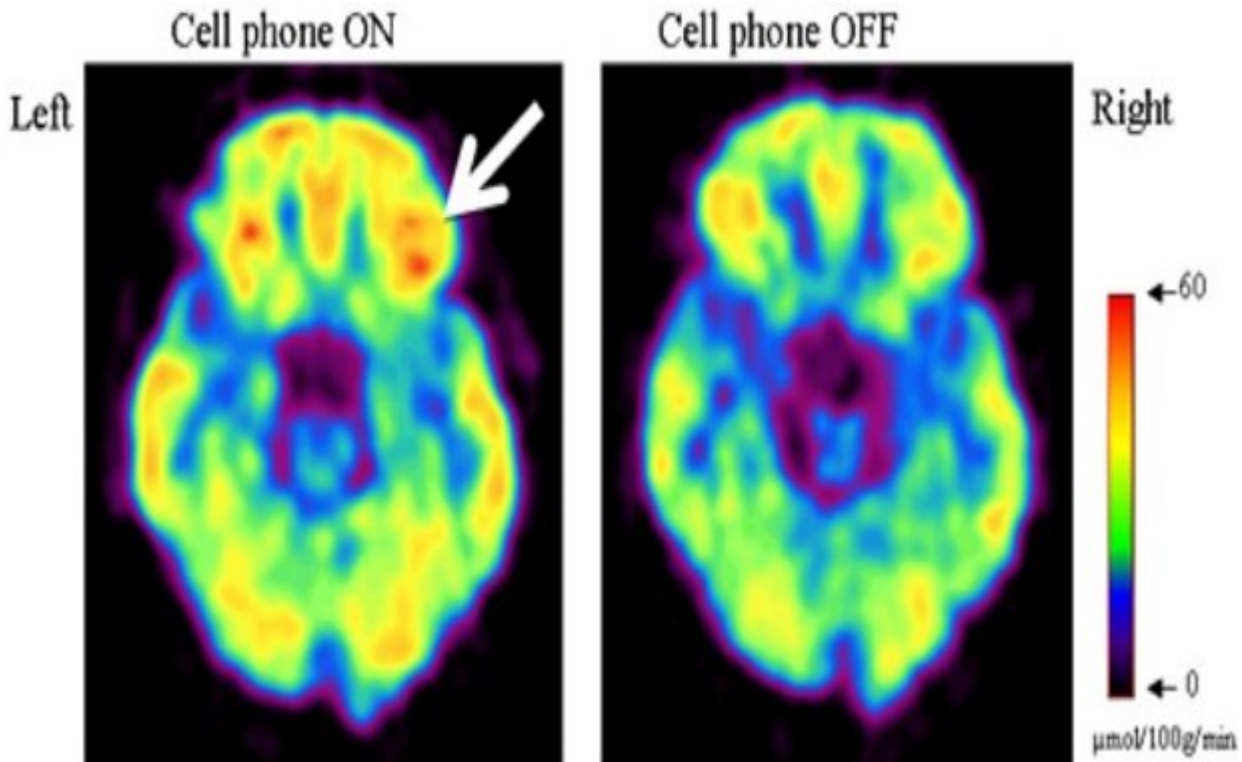


Images and Research Reveal How Cell Phones and Other Wireless “Wi-Fi” Radiation Sources Affect Brain

Description

All “Smart” and wireless sources (devices and infrastructure) expose us to radiation which can cause undesirable symptoms as well as serious illnesses and injuries. Manufacturers are required to provide [warnings about radiation emissions](#) from all “Smart” and wireless products; however, these warnings aren’t necessarily easy to locate or understand. In regard to the brain, research has determined that wireless exposure can disrupt the blood-brain barrier, cause it to leak, and also kill brain cells (see [1](#), [2](#)). Got pets? [Exposure](#) can affect them too.

Thanks to [Environmental Health Trust](#) for providing [more details, images, and reference links](#):



Wireless Radiation Impacts the Brain

The brain is sensitive to wireless radiation exposure. Scientists consider the nervous system to be one of the primary systems impacted by wireless and electromagnetic radiation.

- An NIH study made headlines in 2011 when it found cell phone radiation altered brain activity specifically in the brain regions closest to the cell phone antenna ([Volkow et al., 2011](#)).
- A [study](#) on the brains of rats exposed to Wi-Fi found impacts to the miRNA in brain tissue. The researchers concluded, “Long-term exposure of 2.4 GHz RF may lead to adverse effects such as neurodegenerative diseases originated from the alteration of some miRNA expression and more studies should be devoted to the effects of RF radiation on miRNA expression levels.”
- Scientists from Afe Babalola University, Nigeria exposed rats to a WI-FI device and found the exposure increased the rats anxiety level and affected their locomotor function. When the scientists then studied the brains of the rats, they also found changes in the exposed groups. The researchers concluded that, “these data showed that long term exposure to WiFi may lead to adverse effects such as neurodegenerative diseases as observed by a significant alteration on AChE gene expression and some neurobehavioral parameters associated with brain damage.” ([Obajuluwa et al., 2017](#))
- Studies have found that exposure can increase permeability of the blood brain barrier, thus, allowing more toxic agents to reach the brain ([Sirav and Seyhan 2011](#), [Sirav and Seyhan, 2016](#), [Tang et al., 2015](#), [Pouletier de Gannes et al., 2017](#), [Nittby 2009](#), [Nittby 2008](#), [Eberhardt 2008](#), [Persson 2008](#), [Salford 2003](#)).

Behavioral Problems and Hyperactivity

- Research on pregnant women has linked prenatal cell phone radiation exposure to emotional/behavioral problems ([Divan et al 2012](#), [Sudan et al 2016](#)) and hyperactivity ([Birks et al., 2017](#)) in their children.
- Yale Medicine researchers exposed pregnant mice to cell phone radiation and then studied the offspring. They found the mice who were exposed prenatally had poorer memory, hyperactivity and altered brains ([Aldad et al 2012](#)). “This is the first experimental evidence that fetal exposure to radiofrequency radiation from cellular telephones does in fact affect adult behavior,” said senior author [Dr. Hugh S. Taylor](#), professor and chief of the Division of Reproductive Endocrinology and Infertility in the Department of Obstetrics, Gynecology & Reproductive Sciences.
- Yale’s research findings along with numerous other studies showing impacts to the brain led doctors to sign onto an educational campaign called [The BabySafe Project](#) urging pregnant women to reduce wireless exposure to minimize risks to their babies’ brain development.
- The heavy metal lead is well understood as harmful to the developing brain. Researchers who investigated the combined effects of lead and cell phone radiation have found the combined exposures linked to increased symptoms of Attention Deficit Hyperactivity symptoms ([Byun 2013](#)).

Studies in both humans and animals have linked cell phone radiation and wireless exposure to memory damage.

- In a Swedish study of teenagers where scientists measured the radiation dose to the brain, just one year of cell phone use was linked to memory damage ([Foerster et al., 2018](#)).
- A study investigating the impact of Wi-Fi on working memory in human subjects found changes to neural activity after Wi-Fi exposure ([Papageorgiou et al., 2011](#)).
- Studies on animals have also found damaged memory ([Chaturvedi et al., 2011](#); [Wang et al., 2013](#); [Qiao et al., 2014](#), [Shahin et al., 2018](#); [Tang et al., 2021](#))
- Supporting these studies are numerous animal experiments that have found wireless exposure damaged brain cells specifically in the brain regions critical to thinking and learning ([Sonmez, et al ; Odaci, Bas and Kaplan 2008](#); [Odaci et al., 2016](#); [Odaci et al., 2015](#); [Colakoglu et al., 2009](#); [Saikhedkar et al., 2014](#); [Kaplan et al., 2010](#); [Kaplan et al., 2009](#); [Sager and Okus 2021](#); [Meenachi et al., 2016](#)). As just one example, a 2022 study which found cell phone radiation damaged the hippocampus of mice concluded, “our findings suggest that 2400-MHz RF-EMR cell phone radiation affects the structural integrity of the hippocampus, which would lead to behavioral changes such as anxiety... it alerts us to the possible long-term detrimental effects of exposure to RF-EMR. ([Hasan et al., 2021](#)).

What can you do?

Simple Steps To Reduce Wireless Exposure

The Basics

1. **Minimize Children’s Use:** Cell phones are not toys. Limit their use of cell phones and wireless devices.
2. **Reduce Second Hand Exposures:** If parents reduce the cell phone and wireless use in their home, but choosing safety technology, they can greatly reduce their children’s exposure.

3. **Get to Know Airplane Mode:** Airplane mode is a setting that turns wireless antennas off on your cell phone or device. Be sure to ensure Bluetooth, Wi-Fi, Cellular, and HotSpot antennas are also turned to OFF. The more you use this setting, the less your children are exposed.
4. **Choose Wired Connections:** You can easily swap out most wireless tech for safer corded non wireless technology. Once you know the simple steps, you can still connect to the internet, stream music and videos and talk on the phone- all with a safer non-wireless corded connection.
5. **Increase Distance:** The closer the cell phone or wireless device or router is to your child's body, the more wireless radiation they can absorb. So keeping cell phones and wireless devices away from children will greatly decrease their exposure.

Ways you can reduce cell phone radiation exposure

- Use speakerphone instead of holding the phone to your head
- Do not sleep with the cell phone.
- Do not carry the cell phone in a pocket or bra.
- Text instead of talk or video calls.
- Keep the cell phone at a distance from the body, instead of close to your chest.
- Decrease apps on phone.
- Turn off antennas you are not using.
- Choose a wired airtube headset, instead of wireless headphones
- Prefer a corded landline instead of a cell phone at home and work if possible.
- Set airplane mode on with Wi-Fi/Bluetooth/Cellular off more often.
- Minimize your overall wireless phone use.
- TIP: You can connect your cell phone to the internet via an ethernet cable and turn all wireless antennas OFF.

Reduce Radiation from Computers

- Connect to the internet with a hardwired ethernet connection, instead of Wi-Fi
- Use a wired keyboard, speakers and mouse, not wireless

Tablets and Laptops:

- Use tablets and laptops with an ethernet connection instead of WiFi
- Get an adapter if your device does not have an ethernet port.
- Download content instead of streaming so kids can use the device with the WiFi off
- Devices should always be on a table, not on a lap.

TIP: Set WiFi to off and airplane mode to on before handing a child a device.

Home Phones

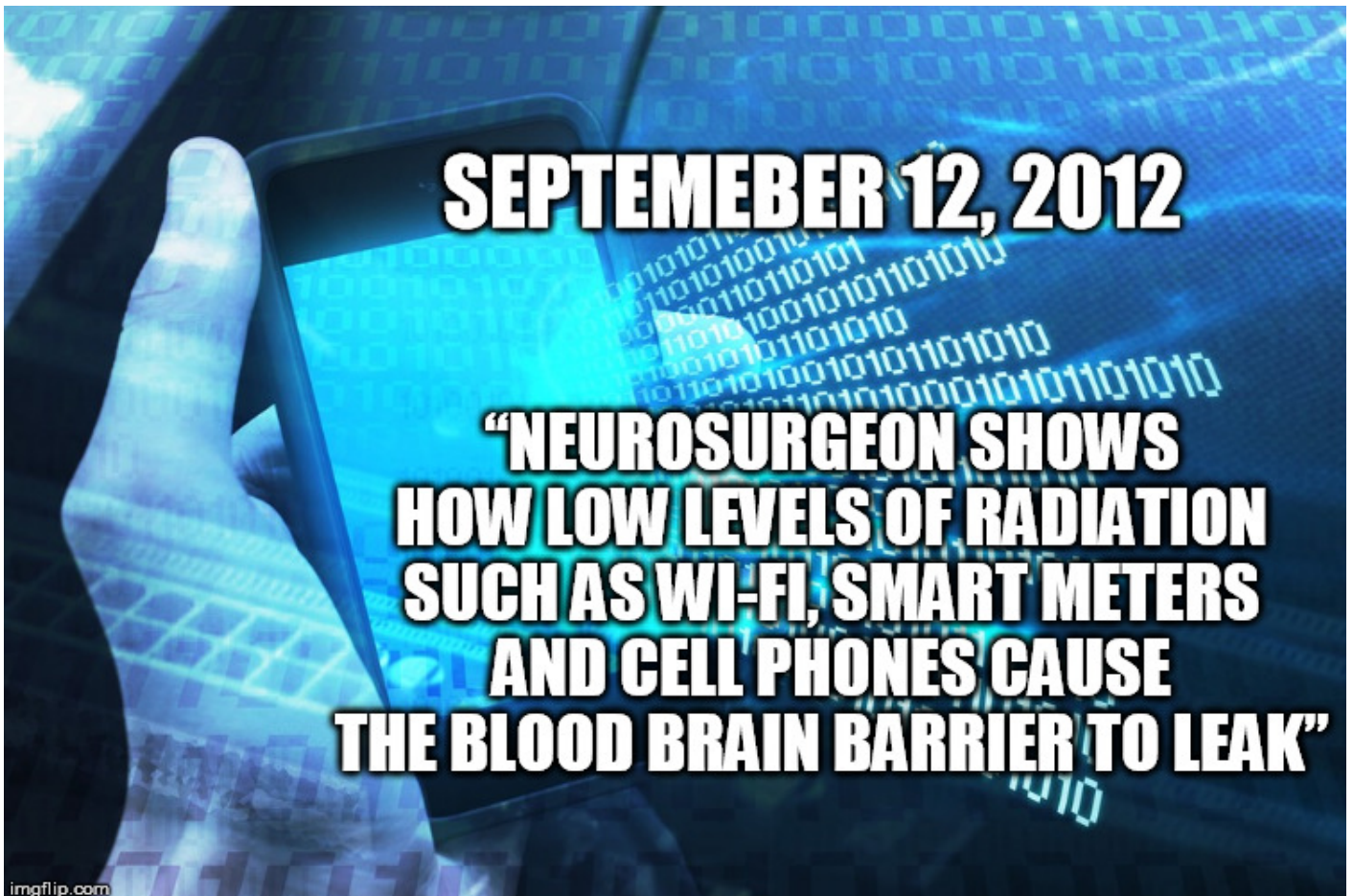
Cordless DECT phones use the same type of wireless radiation as cell phones. The phone bases are always emitting wireless, even if you are not using the phone.

- Get a corded, not cordless, phone.
- Keep your landline if you can.
- If you do not have a copper landline option, consider a VOIP and internet phone option.

- Install phone lines to all rooms where you need a phone
- Forward your cell phone to your landline when at home to minimize cell phone use

TIP: Buy a longer handset cord for your corded phone so you can move around the room.

Learn more at <https://ehtrust.org/educate-yourself/ten-steps-to-safe-tech/>



In some parts of the world, [government agencies have been warning residents](#) about exposure, however, this is obviously not happening everywhere, including in the U.S. In fact, last year, a [U.S. federal court ruled in favor of organizations and petitioners](#) that sued the Federal Communications Commission for [NOT adequately protecting Americans](#) from wireless radiation exposure (including [5G](#)). More recently, non-profit groups petitioned the [U.S. Health and Human Services Department \(HHS\) and Food and Drug Administration \(FDA\)](#) to declare wireless radiation an “imminent” health hazard *and* to start warning the public.

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