

I'm so grateful that HHS wants input on the court-ordered, hopefully forthcoming, new health and safety guidelines for electromagnetic frequency radiation by the FCC.

I have felt impaired and sickened by electromagnetic radiation from cell towers, cell phones and WiFi for 20 years. My problems are the tip of a dangerous iceberg, I'll describe my experience before getting to the medical research.

Ever since I bought my first 'electrosmog' meter in 2009, I've been able to connect how I feel with the level of ambient radiation. My symptoms are intractable insomnia, headaches, muscle pain, belly pain, anxiety attacks, aphasia and short-term memory loss. I've spent a lot of money on shielding — special clothing for me and copper paint for my entire house — and dietary supplements. I avoid unnecessary air travel. I spend a lot of time in my shielded home. In 2016 I participated in the following study with Dr. Gunnar Heuser:

[Functional Brain MRI in Patients Complaining of Electrohypersensitivity After Long Term Exposure to Electromagnetic Fields.](#) Heuser, G. et al. Reviews on Environmental Health 32(3):291-299. (2017).

More on [Electrohypersensitivity](#):

[Case Report: The Microwave Syndrome after Installation of 5G Emphasizes the Need for Protection from Radiofrequency Radiation](#), Hardell, L., Nilsson, M., Annals of Case Reports (Gavin Publishing), 8: 1112, (2023), see www.doi.org/10.29011/2574-7754.101112

The following studies have revealed:

Cancer. See [National Toxicology Technical Report on Cell Phones and Cancer. Toxicology and Carcinogenesis Studies in Sprague Dawley \(Hsd:Sprague Dawley SD\) Rats Exposed to Whole-body Radio Frequency Radiation at a Frequency \(900 Mhz\) and Modulations \(GSM and CDMA\) Used by Cell Phones](#). National Toxicology Program TR595:1-466. (2018).

Neurological Effects:

[2.45 GHz Microwave Radiation Impairs Learning, Memory, and Hippocampal Synaptic Plasticity in The Rat](#). Karimi, N., et al. Toxicology and Industrial Health 34(12):873-883. (2018).

and

[Microwave Frequency Electromagnetic Fields \(EMFs\) Produce Widespread Neuropsychiatric Effects Including Depression](#). Pall, M. Journal of Chemical Neuroanatomy. 7(Part B):43-51. (2016).

Male Reproductive effects: [Long-Term Exposure to 4G Smartphone Radiofrequency Electromagnetic Radiation Diminished Male Reproductive Portential by Directly Disrupting Spck3-MMP2-BTB Axis in the Testes of Adult Rats](#). Yu, G., et al. Science of The Total Environment 698(133860). (2020).

Excessive intra-cellular calcium: Voltage-Gated Calcium Channels in cell membranes: EMF radiation overstimulates the channels' voltage sensors and too much calcium is allowed into cells. When these channels are persistently activated, cell abnormalities and damage result. See *National Toxicology Program TR595:1-466*. (2018). Summary:

<https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones/index.html>

Single and double strand DNA breakages See [Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of](#)

[mobile phone base stations](#). Zothansiana, M., et al. *Electromagnetic Biology and Medicine* 36(3):295-305. (2017).

Cardiac Effects:

Tachycardia, arrhythmias, increase in sudden death. See [The effects of the duration of mobile phone use on heart rate variability parameters in healthy subjects](#). Ekici, B., et al. *The Anatolian Journal of Cardiology*. 16(11):833-838. (2016).

Neuropsychiatric Effects

[Microwave Frequency Electromagnetic Fields \(EMFs\) Produce Widespread Neuropsychiatric Effects Including Depression](#). Pall, M. *Journal of Chemical Neuroanatomy*. 7(Part B):43-51. (2016).