

# Group 1: Health effects of EMF on Children

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## About The Article

This article examines current understanding on the effects of EMF exposure on people, particularly children. The sources of EMF exposure, biological impacts, current World Health Organization and International Agency for Research on Cancer carcinogenicity views, and impacts of EMF exposures on children will be discussed. Considering well-controlled EMF research in children are practically impossible, scientific information should be understood objectively. Children should use cautious until the possible health consequences of EMF are proven. Children's nervous systems are more sensitive to the impacts of electromagnetic waves than adults'. Children's exposure to electromagnetic fields (EMFs) should be limited. Based on the International Agency for Research on Cancer, EMFs are potentially carcinogenic and should not be ignored or perceived with bias.



# About The Article

The article's name is "Health effects of electromagnetic fields on children" by Jin-Hwa Moon, MD, PhD Department of Pediatrics, Hanyang University School of Medicine, Seoul, Korea, published in 2020

- The Korean research, (1993 and 1999,) included 1,928 children with leukemia and 956 children with brain tumors. It discovered that the risk of leukemia was 2.15 times greater in those who lived within 2 kilometers of AM radio transmitters than in people who lived more than 20 kilometers away.
  - The article examined this research and compared it to other studies that were conducted, evaluating the pertinency of the topic and the measures that should be taken based off that information.



## Author's Purpose

The author's purpose is to inform us about how children's nervous systems is more sensitive to the impacts of electromagnetic waves than adults. Furthermore to also educate us readers that, research on the effects of EMFs on children's health are lacking, preventive guidelines for children should be followed, and children's exposure to EMFs should be reduced. In addition, the author believes EMFs are potentially carcinogenic, according to the IARC, should not be neglected or interpreted with bias, and health care or clinics' opinions should be given additional importance than industry's in the development of EMF safety standards. To conclude, a research on the implications of 5G frequency technology on children's health is necessary and precaution is advised.



## Research Methods

The International Agency for Research on Cancer (IARC) evaluated cancer risks from radiofrequency (RF) radiation by human epidemiological studies giving evidence of increased risk for glioma and acoustic neuroma.

Because of the nature of electromagnetic radiation, most studies were based on epidemiological data or animal experiments.

Pediatricians also ask parents about the use of technology of children depending on the reason their there as an oberversion of the issue.



# Background Info

Children are more exposed to EMF than any other age groups, their nervous systems are in the process of development and also children's head absorbs a lot of RF energy more than adults.

Electromagnetic fields (EMFs). EMFs are electromagnetic waves less than 300 units of frequency.

In Korea, general measures have been recommended to reduce EMF exposure such as reducing the use of electronic devices or using them away from the body.

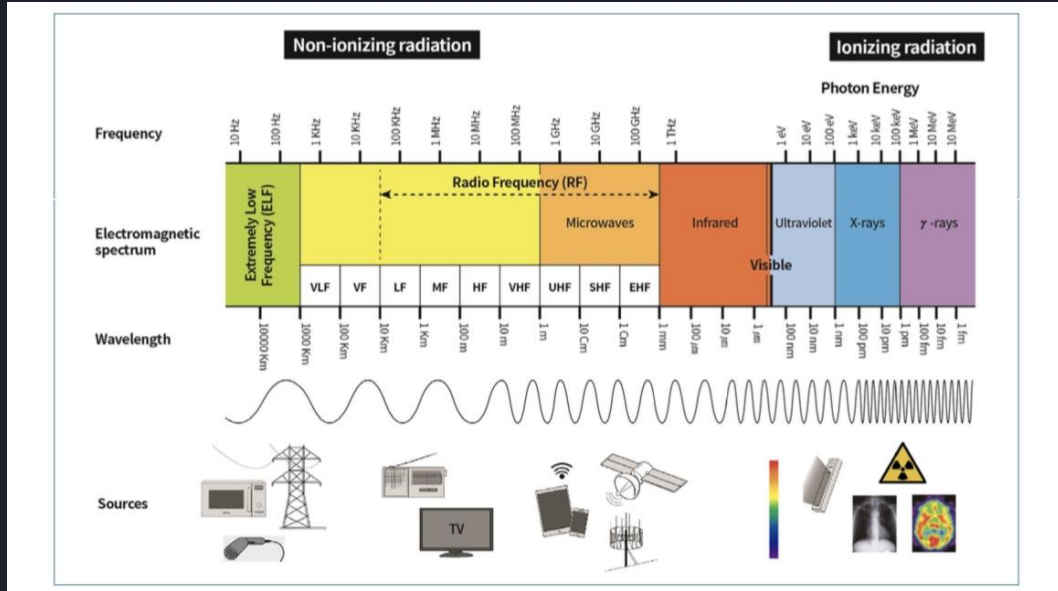
Avoid long-term exposure to strong EMFs in home, school, or other places children spend much of their time.

Extremely low-frequency EMFs: generated through electricity, electrical machines, high voltage lines and transmission towers.

Radiofrequency EMFs: generated through phones, smart devices, WiFi, radars and base stations.

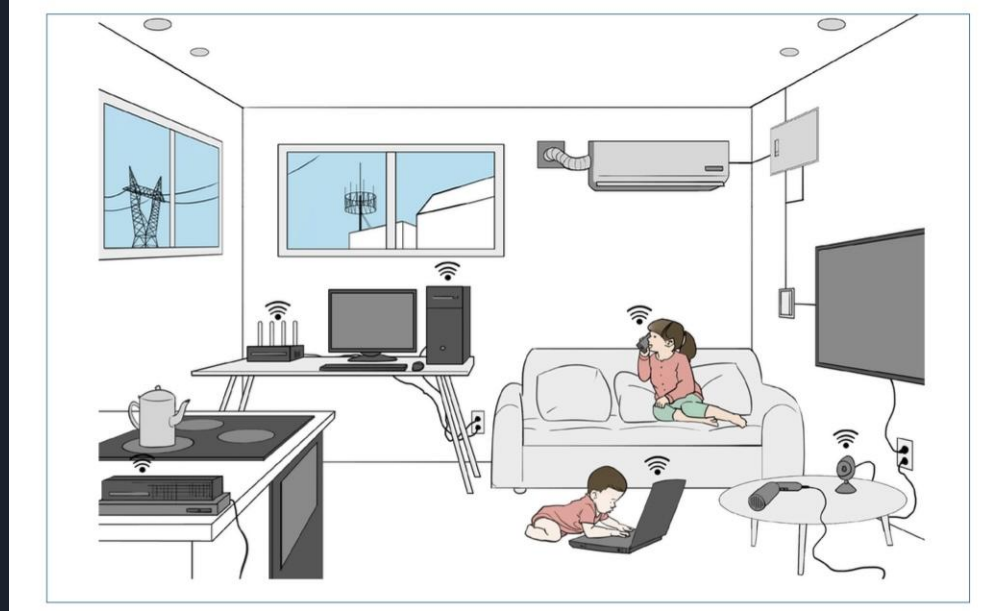
Carcinogenic: the potential of cancer

# Visual 1



Electromagnetic spectrum. Frequency (expressed in Hertz, Hz) increases from left to right and wavelength decreases from right to left. Ionizing radiation is X-rays and gamma rays. EHF, very high frequency. HF, high frequency; LF, low frequency. MF, medium frequency; SHF, super high frequency; VF, speech frequency. VHF, very high frequency. VLF, very low frequency. UHF, Ultra High Frequency

## Visual 2



Various sources of electromagnetic fields (EMF). ELF fields are produced by electricity, various household appliances, household appliances, and outdoor high-voltage power lines. Radio frequency EMF waves are produced by mobile phones, smart devices, WiFi, base stations, and other devices.





## Sources/Significance

This article uses a multitude of sources to contribute to its informative goal. The results and actions of studies conducted by various organizations such as the World Health Organization and the International Agency for Research on Cancer, on the topic of health effects of electromagnetic fields in children was cited and discussed throughout the article. This is significant because the main purpose of the article is to inform its readers about electromagnetic fields and the health effects it could have. By sourcing organizations that have conducted studies on the topic, the information in the article can be viewed as credible.



# Rhetorical Appeals

**Logos:** The majority of the article is surrounded upon the analysis of conducted studies statistics. Using these statistics, logical conclusions were made.

**Ethos:** Credible organizations are sourced throughout the article and

**Pathos:** There is not a major appeal to emotions purposefully being made in the article however the topic being discussed may elicit worrisome or fearful emotions in parents of young children reading the article.



## Biases

The article discusses the information known about electromagnetic fields by first explaining EMFs and then the results of the studies that have been conducted surrounding its effects. For the most part, the author remained unbiased however, at some points in the article it was evident what her opinion over the course of action related to EMFs should be.

“The World Health Organization's (WHO's) opinions and other scientific researches will be critically reviews, and the precautionary principle to reduce the negative effects of EMF on children will be emphasized.”

- Based off of this, while the effects of EMFs on children is a relatively vague study when it comes to actual correlations, it can be seen that the author supports the limitation of EMF exposure in children.