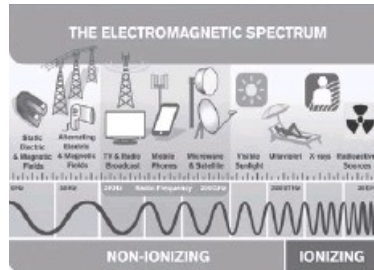


Radiofrequency Radiation from Cell Phones

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Many people are concerned that cell phones (also known as “mobile” or “wireless” phones) might have the potential to cause certain types of cancer or other health problems. There are three main reasons why:



1. Cell phones emit radiofrequency radiation (or radio waves), a form of non-ionizing radiation, from their antennas. Parts of the body nearest to the antenna can absorb this energy.
2. The number of cell phone users has increased rapidly. In the U.S., for example, there were over 400 million cell phone subscribers in the United States in 2017, according to the Cellular Telecommunications and Internet Association. Globally, there are more than 5 billion cell phone users.
3. Over time, the number of cell phone calls per day, the length of each call, and the amount of time people use cell phones have increased. (But because of changes in cell phone technology and increases in the number of base stations for transmitting wireless signals, the exposure from cell phone use – power output – has changed, mostly lowered, in many regions.)

Radiofrequency radiation is a form of electromagnetic radiation. Electromagnetic radiation can be categorized into two types: ionizing (example: x-rays, radon, and cosmic rays) and non-ionizing (example: radiofrequency and extremely low frequency, or power frequency).

Ionizing radiation is high frequency, and therefore high energy, whereas nonionizing radiation is low frequency, and therefore low energy.

Exposure to ionizing radiation, such as from x-rays, is known to increase the risk of cancer. However, although many studies have examined the potential health effects of non-ionizing radiation from radar, microwave ovens, cell phones, and other sources, there is currently no consistent evidence that nonionizing radiation increases cancer risk in humans.

Electromagnetic fields in the radiofrequency range are used for telecommunications applications, including cell phones, televisions, and radio transmissions. The human body absorbs energy from devices that emit radiofrequency electromagnetic radiation. The dose of the absorbed energy is estimated using a measure called the specific absorption rate (SAR), which is expressed in watts per kilogram of body weight.

The only consistently recognized biological effect of radiofrequency radiation in humans is heating. The ability of microwave ovens to heat food is one example of this effect of radiofrequency radiation. Radiofrequency exposure from cell phone use does cause heating to the area of the body where a cell phone or other device is held (example, the ear and head). However, it is not sufficient to measurably increase body temperature. There are no other clearly established effects on the human body from radiofrequency radiation.

Nonetheless, the U.S. Food and Drugs Administration suggests some steps that cell phone users can take to reduce their exposure to radiofrequency radiation:

- Reserve the use of cell phones for shorter conversations or for times when a landline phone is not available.
- Use a device with hands-free technology, such as wired headsets, which place more distance between the phone and the head of the user. Hands-free kits reduce the amount of radiofrequency radiation exposure to the head because the antenna, which is the source of energy, is not placed against the head. Radiofrequency exposures decline dramatically when cell phones are used handsfree.