



Non-Ionizing Radiation From Wireless Technology

Cellphones and other wireless devices emit radio frequency (RF) energy waves. RF energy is one type of non-ionizing radiation.

- Government agencies set safety guidelines that limit RF exposure from wireless devices.
- Scientists continue to study the effects of long-term exposure to low levels of RF.

About Non-Ionizing Radiation From Wireless Technology

Electronic devices that send information through the air are everywhere. Between Wi-Fi, cellphones and other networks, people are in a nearly constant cloud of wireless signals.

Cellphones and some tablets emit radio frequency (RF) energy waves. RF energy is a type of non-ionizing radiation. In other words, it is not strong enough to directly affect the structure of atoms or damage DNA. However, non-ionizing radiation does cause atoms to vibrate, causing an increase in temperature. For example, non-ionizing radiation is used in microwave ovens to heat up food.

At very high levels, RF energy is dangerous. It can heat the body's tissues rapidly. However, such high levels are found only near certain equipment, such as powerful long-distance transmitters. Cellphones and wireless networks produce RF, but not at levels that cause significant heating. In addition, RF energy decreases quickly over distance. At ground level, exposure to RF from sources like cellphone towers is usually very low.

Some people are concerned about potential health effects, especially on the developing brains and bodies of children. Some studies suggest that heavy long-term use of cellphones could have health effects. Other studies don't find any health effects from cellphone use. Long-term studies on animals exposed to the RF found in wireless networks (Wi-Fi) have, so far, found no health effects. Scientists continue to study the effects of long-term exposure to low levels of RF.



With the use of cellphones and laptops, we live surrounded by wireless signals.

Rules and Guidance

U.S. FEDERAL COMMUNICATIONS COMMISSION (FCC)

In the United States, the FCC sets safety guidelines that limit RF exposure. They license transmitters and facilities that generate RF and microwave radiation. The FCC has adopted exposure limits for RF energy. All hand-held wireless devices sold in the United States must comply with these limits.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS), U.S. FOOD AND DRUG ADMINISTRATION (FDA)

FDA works with FCC to regulate wireless medical devices. FDA can take action if wireless phones emit levels of RF determined to be dangerous.

What you can do

Scientists continue to study the effects of long-term exposure to low levels of RF. If you are concerned, you can take these simple steps to reduce exposure to RF radiation:

- **Limit use** - Reduce the number and length of your calls or time spent on a wireless device.
- **Use hands-free devices** - Using hands-free devices keeps mobile phones away from your head.
- **Increase distance** between the wireless device and your body.

Where to learn more

You can learn more about non-ionizing radiation from wireless technology by visiting the resources available on the following webpage: <http://www.epa.gov/radtown/wireless-technology.html#learn-more>.