Human health risks from Electromagnetic Fields and Radio Frequency Radiation Real

Dr. Ileana Johnson Paugh (Bio and Archives) Tuesday, January 22, 2013

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Bioinitiative 2012 has just released its 2012 report on January 7, 2013, an update of the 2007 version. It includes approximately 1,800 new studies on biological effects and adverse health effects from electromagnetic fields such as power lines, electrical wiring, appliances, hand-held devices, and from wireless technologies such as cell and cordless phones, cell towers, Wi-Fi, wireless laptops, wireless routers, baby monitors, surveillance systems, and wireless utility meters (smart meters).

The report has been prepared by 29 authors from 10 countries; ten researchers have medical degrees (MDs), twenty-one have PhDs, three have MsC, MA or MPHs. RF color charts can be downloaded as well as 4 links with summaries of hundreds of studies done between 1990 and 2012 on the “free radical damage from both RFR (radio frequency radiation) and ELF (extremely low frequency) and a set specific to electro-sensitivity.” (www.bioinitiative.org/report/research-summaries/)

Lennart Hardell, MD from Orebro University, Sweden, said, “There is a consistent pattern of increased risk for glioma, a malignant brain tumor, and acoustic neuroma, with use of mobile and cordless phones.” Acoustic neuroma is a slow growing benign tumor of the vestibular cochlear nerve that connects the ear to the brain. As it grows, it can damage other nerves. “Epidemiological evidence shows that radiofrequency should be classified as a human carcinogen.”

The topics explored, as evidenced by the abstracts, include damage to DNA and genes, changes in memory, learning, behavior, attention, sleep disruption, insomnia, heat sensitivity, cell damage, cancer, benign tumors, and neurological impairment and diseases such as Alzheimer’s. Human subjects as well as animals and birds were used.

At least a dozen studies connect cell phone radiation to sperm damage. The DNA of sperm may be harmed, misshapen, and fertility in men may be impaired even by a cell phone kept in a pocket or on a belt. Laptop computers and wireless Internet connection can also damage DNA in sperm.

“The existing FCC/IEE and ICNIRP (International Commission on Non-Ionizing Radiation Protection) public safety limits and reference levels are not adequate to protect
Based on strong evidence for vulnerable biology in autism, EMF/RFR (electromagnetic fields/radio frequency radiation) can plausibly increase autism risk and symptoms.

Martha Herbert, MD, PhD, believes that in people with autism disorders, children, people who are planning to have a baby, during pregnancy, we should minimize wireless and EMF (electromagnetic field) exposures. Pregnant women who use laptops and phone are not aware that such wireless devices may alter the brain development of the fetus and may cause miscarriage. Children and adolescents may be adversely affected by wireless classrooms.

David O. Carpenter, MD, co-editor of the 2012 Report said, “There is now much more evidence of risks to health affecting billions of people world-wide. The status quo is not acceptable in light of evidence for harm.” New safety standards are urgently needed for protection against EMF and wireless exposures present everywhere in daily life.

Smart meters use radio signals to communicate via RFR (radio frequency radiation) and are similar to those in a cell phone. Smart meters (advanced metering systems) pulse information several times per minute to the utility company on the electricity demand and usage of someone’s home. Microwave ovens, radar, Wi-Fi devices also emit RFR.

I have read the findings of the abstracts in the four links of the Bioinitiative 2012 Report and chose some that I found particularly interesting.


J. Frahm said that the “interaction of extremely low frequency (ELF) magnetic fields (MF) of 50 Hz with cells can induce alterations in various cell physiological processes.”
Al Garip and Z. Akan reported that “It is by now accepted that extremely low frequency electromagnetic fields ELF-EMF (0-300 Hz) affect biological systems although the mechanism has not been elucidated yet.” (Garip Al, Akan Z. Effect of ELF-EMF on number of apoptotic cells; correlation with reactive oxygen species and HSP. Act Biol. Hung. 61 (2): 158-167, 2010)


Atasoy’s findings raise questions about the safety of radiofrequency exposure from Wi-Fi Internet access devices for growing organisms of reproductive age, with a potential effect on both fertility and the integrity of sperm cells. (Atasoy HI, Gunal MY, Atasoy P, Elgun S, Bugdayci G. Immunohistopathologic demonstration of deleterious effects on growing rats testes of radiofrequency waves emitted from conventional Wi-Fi devices. J. Pediatr. Urol. March 30, 2012)

Martin and Goodman found that electromagnetic fields (EMF) in both extremely low frequency (ELF) and radio frequency (RF) ranges activate the cellular stress response, increasing levels of stress proteins. In the RF range DNA strands break down. To protect living cells, “EMF safety limits must be changed from the current thermal standard based on energy, to a standard based on biological responses that occur long before the threshold for thermal changes.” (Martin B, Goodman R. Electromagnetic fields stress living cells. Pathophysiology 16, 71-78, 2009)

For reasons of space, I constructed a short list of radiation effects without citations. They can be found under the four links of abstracts on the Bioinitiative 2012 website. (www.bioinitiative.org)

- Most mobile phones emit 900 MHz of radiation that is mainly absorbed by the external organs.
- Static magnetic fields (SMF) effect genetic mutation and necrosis.
- Electromagnetic field (EMF) radiation has been found to induce arterial dilation.
- It is generally accepted that electromagnetic fields (EMF) can exert biological effect but the mechanism by which EMF elicits responses are still unknown.
- Childhood leukemia has been the only cancer consistently reported in epidemiological studies as associated with ELF MFs.
- Increasing production of free radicals in organisms is one of the putative mechanisms by which an extremely low frequency magnetic field (ELF-MF) may affect biological systems.
- There is a relation between the exposure of SMF to ELF-EMF and the oxidative stress through distressing redox balance leading to physiological disturbances.
• “Epidemiological studies have suggested that extremely low-frequency magnetic fields (EMF-MF) are associated with an increased incidence of cancer. Studies using in vitro systems have reported mixed results for the effects of ELF-MF alone, and the World Health Organization (WHO) Research Agenda published in 2007 suggested that high priority research should include an evaluation of the co-carcinogenic effects of ELF-MF exposure using in vitro models.”

While Americans have the option to pick what appliances they surround themselves with, they do not have much choice when it comes to power lines and electrical wiring, cell towers, and smart meters (advanced metering systems).

All across the country utility companies are in a hurry to install smart meters and connect everyone to the smart grid. This move is supposed to save energy, reduce consumption, reduce the cost per kilowatt hour, and deliver energy more expediently to all customers, none of which is actually true. Supply is curtailed, costs have skyrocketed in some states, people’s homes are electronically searched without a warrant, their usage information and patterns of consumption are sold to third parties, while customers are suffering adverse health effects from radiation. The smart meters are expedient, of course, for the utility companies, their financial gain, and for the environmentalists who control our lives in the name of saving the planet. And the smart grid is a sitting duck to the next solar flare or cyber-attack.