Ask Jon Eakes

OVERVIEW: Electromagnetic radiation and your health: the debate

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All electrically driven gadgets that so dominate our way of life today give off what we call ElectroMagnetic Radiation or EMR. This radiation takes several forms. All standard electric devices from household appliances to the hydro power lines give off some degree of ELF or Electromagnetic Fields. Cordless phones, baby surveillance gadgets, all cordless computer connections, Wi-Fi and especially cell phones and cell phone towers give off RF or Radio Frequency radiation. And there are times when both types are mixed together such as with RF static on an AC power line caused by unstable feedback from such devices as computers and light dimmers (the reason for line filters in quality sound systems).

All of this is invisible, you can't smell it and very few people even have any direct sensation of "feeling" it. We have so learned to love all of these gadgets, from the clothes washer, to the micro wave oven to the cell phone and now wireless computer connections that we really don't want to even think that there is a down side to any of this fantastic stuff -- and industry certainly doesn't want to think of the possibility of outlawing cell phones or wireless computer networks.

But we do know, and everyone agrees, that extreme exposure to such radiation can be harmful, as was discovered with early experience with hydro power line workers and un-shielded micro-wave ovens. It was determined by scientists and health officials at that time that if electromagnetic radiation was strong enough to heat up skin tissue that it was harmful to human health -- as it was to the chicken cooking in the micro-wave oven. So a wide range of safety limits and containment mechanisms for all of this radiation was established, based on heating human tissues. And those are the safety limits that are in place today.

But the variety of radiation and the strengths of the radiation and the length of exposure to such radiation have radically changed over the last few years, as well as the age group of people exposed. There is hardly a place on the planet today that is not subject to some levels of EMR exposure. Today it is quite common for young people still in their developmental period of life to spend hours on end with cell phones glued right next to their brain cells, and powerful transmition towers are conveniently planted right on the roofs of high rise apartments or in residential areas where people sleep every night. Many scientific and health specialists worry about the consequences of all of this while the official legislative controls continue to apply a very minimum control based on proven levels of heating skin tissue.

The debate is shaping up as follows:

One side sees no definitive research showing absolute harm to humans; hence continue the use of new electric and electronic technologies until such proof appears -- while the other side says that there is enough information to warrant that the burden of proof be reversed and slow down the implementation of all this radiation until it is proven to be harmless. This position is vexing to the industry scientific community because it is impossible to "prove" that something is harmless -- you can only prove specific cases of harm. Both sides use many of the same studies but they are arriving at different conclusions, and you thought this was going to be simple!

The key "medical" debate behind all of this is that one side is measuring the only clearly known medical "harm", the heating of tissue by the radiation -- while the other side is arguing that the body is a bio-electrical-electromagnetic organism (as is clearly demonstrated with Acupuncture, a medical reality denied for years and now generally accepted by western medicine) and this radiation is interfering with the body's own communication and control system. I have gone head to head on

public radio with respected scientific types on this question of interesting and often disturbing reactions by the human body system to electromagnetic radiation. They have argued that even acupuncture has been proven to be a hoax (despite the fact that it has been long accepted and licensed as a medical act by the College of Doctors of Quebec and paid for as such by medical insurance programs). May I mention another interesting breach in the scientific refusal to see the human body's interaction with electromagnetic fields? The vast majority of domestic water wells in Quebec and in most of the world are drilled according to instructions from "dowsers" working for engineering and architectural firms. Dowsers are very sensitive people who are able to detect minute arm muscle reactions to variations in the earth's magnetic fields caused by the presence of veins of water deep in the ground. Science can't prove this yet, but scientests continue to have their own country home wells dug according to the instructions of field proven dowsers.

The cautionary side argues that much of this modern radiation is in fact "bio-active" at exposure levels thousands of times lower than is currently permitted. The problem for medical scientists on both sides is that with the exception of cooking that chicken in the micro-wave oven, it takes a very long time for the human body to react to ELF and RF radiation so definitive studies may not be concluded until dozens of years of observations have been made while new technologies arrive every year.

I have found no one document supporting the full steam ahead industry position although they do have powerful industry lobbies speaking to all governments all over the world; talking about jobs and competition and prosperity, agruing that they should not even slow down until someone "proves scientifically" that they are causing harm. The most through summary of the cautionary approach was released in August of 2007 by the BioInitiative Working Group, an international working group of scientists, researchers and public health policy professionals who reviewed the existing literature. (To be fair it must be reported that the Industry side argues that this group is a collection of self-serving sudo-scientists using bad methodology to arrive at non-justified conclusions. The BioInitative group retorts that most of the scientists on the other side are on industry payrolls.) However, by 2011, more and more "true scientific double blind" studies are showing that EMR radiation is in fact affecting the human body -- like this one proving that heart palpations can be caused by a common household wireless telephone base, operating at about the same power as simple domestic wi-fi hub: http://www.youtube.com/watch?v=p-mw_nCJWs4

The position of the BioInitiative Group is stated as: "It appears it is the INFORMATION conveyed by electromagnetic radiation (rather than heat) that causes biological changes - some of these biological changes may lead to loss of wellbeing, disease and even death."

This is truly a deaf debate as the Industry side is not even seriously looking at any effect other than heating skin tissue, and the BioInitiative groups says that the immune system of many people is being shut down by static in the body's bio-electrical communications system, a system which the industry group does not appear to believe exists, or if it does exist they don't believe it can be affected by outside magnetic fields.

What are the recommendations from each side?

Industry is saying: Prove there is a problem and we will adjust -- as they did with micro-wave oven enclosures and radiation barriers on TV and computer screens.

The BioInitiative Working Group is saying: "These proposals (proposals from the BioInitiative Working Group report) reflect the evidence that a positive assertion of safety with respect to chronic exposure to low-intensity levels of ELF and RF cannot be made. As with many other standards for environmental exposures, these proposed limits may not be totally protective, but more stringent standards are not realistic at the present time. Even a small increased risk for cancer and neurodegenerative diseases translates into an enormous public health consequence. Regulatory action for ELF and preventative actions for RF are warranted at this time to reduce exposures and inform the public of the potential for increased risk; at what levels of chronic exposure these risks may be present; and what measures may be taken to reduce risks."

Someone believes this is a valid position. The newspaper The Independent from London in September of 2007 reported: "The (German) Environment Ministry recommended that people should

keep their exposure to radiation from Wi-Fi "as low as possible" by choosing "conventional wired connections". It added that it is "actively informing people about possibilities for reducing personal exposure". The paper goes on to report that this German position is helping Sir William Stewart, Britain's official health protection watchdog, in his effort to review the use of Wi-Fi in schools. The article quotes Florian Emrich of the German Federal Office for Radiation Protection as justifying the warning against the use of Wi-Fi "because people receive exposures from many sources and because it is a new technology and all the research into its health effects has not yet been carried out".

Solution Resources
After talking about this topic on the radio because of the Hydro Smart Meter controversy, I have a lot of demands for links to resources; so for those of you who feel you are already Electro-Hypersensitive or would simply like to apply the Precationary Principle as much as you can on those parts of this problem that you can possibly control, here is just a little bit of help.
Stephan Bélainsky I know and can recommend for the Montreal area as an expert assessing and providing solutions to specific houses: www.em3e.com
Another resource that I know personally and do recommend for filtering devices for the house is www.GetPurePower.ca
Just searching the web will give you a lot of possibilities but it is quite true that many are just selling gadgets while many others have legitimate products. The greatest difficulty is knowing if any one product is actually going to help in your particular situation. Because Electromagnetic radiation is so varied in its source and its intensity as well as your individual reaction will be quite varied as well, you need to try and evaluate what to begin with and how far to go. That requires a lot of study, or a professional consultation.
But here, without recommendation, are a few leads to products:
EMF Shielding & Conductive Fabrics
and from the same source, Cell phone shielding devices
Electrical Pollution Solutions
Philadelphia based Information Ventures does large scale work on EMF Health Effects and has a great library of information.
Le Coalition québécoise de lutte contre la pollution électromagnétique -- in French only -- leading the Québec movement against the Hydro Smart Meters.

For the full BIOINITIATIVE REPORT:
"A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF)" go to www.Bioinitiative.org. They are now charging a $2 web site fee to keep the site active, but the report is a free download.
For a very interesting and very readable basic primer on Bio-Electrical-Chemistry see the book: The Body Electric; Electromagnetism and the Foundation of Life by Robert O. Becker and Gary Selden that dates way back to 1985.
There are many devices being sold to either identify or protect you from various aspects of EMR in your personal lives. Traditional or even consumer Guss meters are available that simply measure certain aspects of radiation in a given place -- but then you enter the debate as to what that measurement might mean for your health. There are radiation shields ranging from pendants that hang around your neck to computer and TV screen filters, to electrical line filters, cell phone "shields", "grounded" bed sheets and even wallpaper meshes to block cell tower transmitions and other radiation from entering your home. There is even a growing industry of people who will come and measure all areas of your home for all types of radiation and offer you solutions -- solutions to a problem that is difficult to prove even exists. Some of these devices and services have scientifically measurable effects while others remain more in the field of the esoteric. In both cases we don't know much about how the body's bio-electrical mechanisms react to the presence or absence of these EMF and RF fields.

What we do know is that the strength of this radiation diminishes with distance so for those who are worried about the potential health effects of all of this and still want all the toys, you can simply reduce the number of transmitters and receivers that are close to you and/or the length of exposure. Do not build houses, schools or hospitals near large electric transmition lines. Use wired headsets to get the wireless telephone or cell phone away from our brain cells. Regularly change the position of the cell phone on our belts to avoid constant radiation to a single internal organ. Turn off wireless computer networks when they are not actually being used -- or better yet go back to wired LAN systems.
Perhaps most importantly, as has been well documented through the Swedish health system, when you have unusual health symptoms like dizziness, chronic fatigue, eye problems, or skin rashes and your doctor can't find the cause-- radically change your electrical environment and observe if there is a change in your condition. There may be no connection but a growing number of people are finding themselves hyper-sensitive to Electromagnetic Radiation and creating a "clean" environment for themselves becomes the solution.
As for the larger question of communication towers and other "public" exposure to EMR I would hope to encourage a rigorous debate with the openness that accepts that the human body functions not only as a chemical organism but as a bio-electrical organism and the possibility that we are creating static on our own internal communication systems.

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Appliances, Computer, Controversy, Cordless, Electrical, Electromagnetic Fields, Environmental, Health, Measuring, Overview, Problems, Protection, Radiation, Radio, Safety, Schools, Static