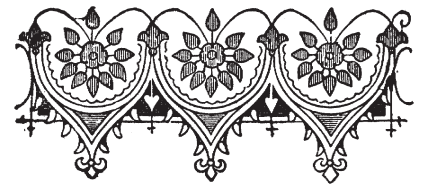


Health & Wellness



ElectroSmog: Hidden in Plain Sight



Dr. Kate Thomsen and Silky

"Hidden in plain sight" is a phrase we hear often these days. It implies that amongst the glut of information that pours over us every day – we should know more, see more, or maybe see some information differently – if we see it at all, amongst the more than 34 gigabytes of information our brain absorbs every day. We live in the information age and may not just be suffering psychological stress from "too much information", we may also be experiencing physical stress from the medium of this information. Our cell phones and wi-fi bring us information through electromagnetic waves that were developed over the last century but became ubiquitous only in the last 50 years. The public takes the safety of their "devices" for granted while research into health effects of exposure have yet to be solidified. This mimics the early days of cigarette and asbestos introduction into the market: innocent until proven guilty, industry-influenced research, and heavy marketing in the name of progress.

Electrosmog is a term used to describe the electromagnetic waves that surround us in our environment. There are the visible light waves hitting our eyes, radio waves carrying your favorite tunes, microwaves carrying your cell phone's text message and wi-fi from your neighbor's house. Radiant energy spreads out as it moves, like light. But not all energy is visible. If you google the Electromagnetic Spectrum you will see the range of frequencies of electromagnetic radiation, each with different wavelengths and photon energies. Visible light is in the middle of the spectrum. On the one side, is ionizing radiation which is known to be harmful to humans. This is the high

energy and short wavelength radiation of X rays and gamma rays. On the other side of visible light is non-ionizing radiation which is assumed to be safe. These are the low energy, long wavelengths of infrared, microwave and radio waves. Cordless phones, cordless baby monitors, cell phones, cell phone towers, cell phone transmitters, wi-fi routers, blue tooth, smart thermostats, smart meters, and the internet of things use the microwave spectrum wavelength. This form of radiant energy is found in the cosmos and passes easily through the earth's atmosphere. It was discovered in the late 1880's and harnessed for practical uses – mostly communication technologies.

While most of us, experience no short-term ill effects from our cell phones, other persons have reported electrical hypersensitivity. With exposure to common sources of electrosmog, these people have reported headaches, disruptive sleep patterns, chronic fatigue, depression, ear ringing/tinnitus, hypersensitivity/irritability, erratic blood pressure, skin complaints, and behavioral changes. There appear to be genetic predispositions and possibly overall toxin body burdens in these individuals that culminate in becoming sensitive to the EMFs that were previously tolerated (You Tube: Ted-Talk, Wireless Wake-up Call) Whether these are the "canaries in the coal mine" or not, there is disturbing research regarding the ways EMFs may be affecting human health and, at the same time, newer, more potentially harmful wavelengths are looming in our near future. The upcoming 5G technology uses an untapped bandwidth, millimeter waves. It is a short wave that only travels a short, straight distance and hence there will have to be many small, barely noticeable cell phone towers with lots of inputs and outputs all over every neighborhood. 5G will produce very fast response times for the "Internet of Things" to help them/help us manage our lives. These waves are absorbed by our skin, can stimulate pain receptors and have potentially adverse effects on the eyes, heart, and immune system as well as the potential

to adversely affect plants and bacteria.

From the time of the invention of electricity, through 2 World Wars, the development of radar communication, up until 1960 there was much interest in how electromagnetic radiation affected biologic processes. Mostly conducted by the military, the prevailing view was that microwave radiation has thermal effects and, kept to a level below 10 mw/cm², was not harmful to humans. While current testing has shown that holding the cell phone against your ear does not boil your brain, the electromagnetic energy does penetrate, and it goes deeper through the thinner skull of children. Accumulating data has been showing that a process other than "thermal heating" may be at work. It is now believed that cell phone radiation stimulates the voltage sensor in voltage gated calcium channels (VGCC) in the outer cell membranes. This would mean that affected cells would pour calcium ions from the outside to the inside of the cells – a process that is normal but not as exaggerated as this. Calcium is a signaling molecules and, in this instance, triggers the formation of peroxynitrite creating oxidative stress inside the cell. Animal studies have shown adverse effects of cell phone radiation in tissues that have a high density of VGCCs: the central nervous system, the heart, the reproductive system, as well as strand breaks in the DNA. The US Government Interphone study involving multiple countries over ten years reported in 2010 that heavy users of cell phones had an approximately doubled risk of glioma (brain cancer) after 10 years of cell phone use. At that time heavy use was considered someone using a cell phone for 2 – 2 1/2 hours per month. (By 2014 a Nielsen study put the average American usage at 34 hours per month.) Swedish research looking at risk factors in patients with malignant brain tumors from 1997 to 2009, found that use of a cell phone or cordless house phone for more than 25 years tripled the risk of glioma compared to less than 1 year of use. In 2011 The World Health Organization reported that wireless tech-

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**EMF'S: DECREASE EXPOSURE/
INCREASE PROTECTION**

- Keep Cell phone on Airplane Mode when not using it
- Can keep cell phone in a Faraday Bag
- Hard wire computer; Get corded phone land lines
- Turn router off at night
- www.ElectricSense.com (Lloyd Burrell)
- Increase Nrf2 foods
 - Upregulates antioxidants, lowers inflammation, detoxifies. These include:
 - sulphorophanes (broccoli), fish oil, phenolic antioxidants (cocoa, flaxseed, chokeberry), isothiocyanates (cabbage), sulfur (alliums), carotenoids (orange vegetables)
- Nitric oxide dump exercise – Jack Bush (google it)
- Magnesium as a natural Calcium Channel blocker (for the VGCCs) suggested by Dr Mercola



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nology is possibly a carcinogen. There is no widespread agreement on this. Dr Henry Lai looked at 326 studies on the biologic effects of cell phone radiation. He found that half of the studies showed effects and half of the studies showed no effects, which he expected. But when he broke them down by sponsor, he found that 70% of non-industry-based studies showed harmful effects while 30% showed no effects. Among industry-based studies, 68% showed no effect and 32% showed harmful effects. While industry sponsorship of research has always been problematic, the bigger concern is the lack of availability of non-industry funding. Researchers claim funders are no longer interested.

Many of the studies showing that microwave radiation does not harm human cells looked at thermal effects. Interestingly, even with the knowledge that there is another mechanism of harm, cell phones are only safety tested for their thermal effects – determining if they would produce too much heat when held "near" the ear. Yes, your cell phone comes with a warning that states you should always keep your phone about 1/2 inch away from your body –

never against your body. And phones are tested as if we still carry them in holsters (1/2 inch away from our bodies). A good documentary on this was done by the Canadian Broadcasting Company, The Secret Inside Your Phone: Cellphone Safety and Testing. In 2016 the US Center for Disease Control and Prevention stated "Some organizations recommend caution in cell phone use. More research is needed before we know if using cell phones causes health effects." For the record, I do own a cell phone and use wi-fi. Most of the research for this article was downloaded and the resources recommended need to be googled. It seems like one can't live without a high dose of microwave radiation these days. And that's even scarier...

Dr. Kate Thomsen's office for holistic health care is located in Pennington, NJ. She is trained in Family Medicine, and Board Certified in Integrative Medicine, and is an Institute for Functional Medicine Certified Practitioner. She has been practicing Functional Medicine for 20 years. For more information see www.drkatethomsen.com or call the office at 609-818-9700.