THE DANGERS OF SMART METERS

- and other microwave transmitting technology -

ELECTROMAGNETIC FIELDS AND HUMAN HEALTH

Published with permission of the author: Dr. Sat Dharam Kaur, ND

THIS ARTICLE HAS AN EXTENSIVE LIST OF HOW TO LIMIT EXPOSURE

What are Electromagnetic Fields?

Electromagnetism is a force that exists between objects composed of atoms with electrical charge. It holds the atoms together that make up our bodies and objects in the visible world of form, governs the interaction of molecules and is necessary for all chemical reactions to occur.

The movement of electrons generates an electrical field, measured in voltage. When there is a flow of electrons through a conducting material (such as the human body), an electrical current is produced, which then generates a magnetic field in the space that surrounds the conducting material. The rate and amount of current flow through the conducting material determines the strength of the magnetic field. Magnetic fields can attract and trap charged particles.

Amazingly, the magnetic field produced by the flow of current through a conductor is infinite, is not easily shielded, passes through objects and walls, and travels at the speed of light. Much like sound waves that become larger as they move through space, magnetic fields weaken as they expand outward and mix with background fields, but in theory never end.

Life on earth has evolved in relationship to and with a dependence upon the electromagnetic frequencies in the infrared, visible and ultraviolet spectrum – the light from the sun, as well as the natural frequencies generated by the earth. Electromagnetic radiation connects everything in the universe, forming a vast pulsating field of different frequencies, and we vibrate within that field. We receive the information present in this field both through our senses (which our brains translate into apparent reality) and on a cellular level.

Our Bodies are Receivers, Generators, Conductors and Transmitters of Electromagnetic Energy

The electrical activity that occurs in our bodies produces magnetic fields, termed biomagnetic fields. The heart produces the strongest electrical and magnetic activity of any tissue in the body, and its biomagnetic field extends indefinitely in front of and behind the body. The electrical activity of the heart is generated from the continuous rhythmic movement of positively and negatively charged sodium, potassium, chloride, calcium and magnesium ions across each heart cell membrane. The heart's magnetic field measures at 10^{-3} gauss, which is one millionth the strength of the earth's magnetic field and about one-thousandth of the background magnetic field in a city environment.

Brain activity also produces an electromagnetic field, hundreds of times weaker than the heart's field. Each of our muscles produces a small magnetic pulse when it contracts, which it radiates into surrounding space. The measurable biological electricity generated by the body in each of these cases arises from the passage of charged ions across cell membranes, and the ability of these membranes to temporarily depolarize and repolarize.

All living cells and chemical processes rely on electromagnetic interactions between molecules, responsible for the making and breaking of chemical bonds, the release of energy from food, the production of cellular energy and the transport of minerals, nutrients, hormones, neurotransmitters and neuropeptides across cell membranes. Just as we use electromagnetic frequencies to communicate with one another via radio, the internet or by telephone, electric and magnetic fields generated by our bodies' tissues and organs are part of its own complex and rapid internal communication system. When those electromagnetic frequencies are insufficient or disrupted, illness can occur.

James Oschman, in his important book, *Energy Medicine: The Scientific Basis*, suggests that our entire body can conduct electrons, and transmit energy in a precisely controlled fashion, acting as a semi-conductor for the spectrum of electromagnetic energy and frequencies traveling at the speed of light. In recent years, scientists have determined that the hollow, spaghetti shaped microtubules present in all our cells act as miniature fiber optic cables capable of transmitting electromagnetic frequencies. (Not unlike the fiber optic cables that carry high speed information to us through the Internet). The water in and around the cell and within the microtubules "records" the information or "consciousness" contained in frequencies and photons (and homeopathic remedies).

This information is then communicated through the microtubules nearly simultaneously to all parts of the body. In effect, the water and matter of the body continually download and transmit information or "consciousness" coming from the interaction of the magnetic fields within us and around us. Our body is our personal computer, linked with the living computer that is the universe.

The body generates many different vibratory frequencies, primarily in the ranges of near infrared, visible light and the ultraviolet spectrum. These vibrations are transmitted within the organism at the speed of light, and are radiated into the environment. They serve as signals that regulate processes of growth, repair, defense, co-ordinating cellular activity and the function of the individual as a whole. In short, they regulate body chemistry. In 1988, the scientist Albert Szent-Gyorgyi theorized that, "molecules do not have to touch each other to interact. Energy can flow through … the electromagnetic field …The electromagnetic field, along with water, forms the matrix of life. Water … can form structures that transmit energy."

The Earth's Magnetic Field

The earth's magnetic field fluctuates when the electrical charges from clouds and the surface of the earth build to generate lightning, which occurs about 200 times every second. The space between the surface of the earth and the ionosphere (the atmospheric layer that is ionized by solar radiation and forms the inner layer of the magnetic field) creates a cavity in which electromagnetic pulses from lightning bounce around the earth. Lightning pumps energy into this cavity, causing it to resonate at frequencies between 1-40 Hz, with an average frequency of 7-10 Hz. This is known as Schumann resonance, after the German atmospheric physicist who discovered it in the 1950s. These frequencies are similar to those produced by our hearts and brains, and emitted from the hands of healers, although the Schumann resonance is thousands of times stronger. Our health and function are affected by whether we are synchronized with the pulsations of the Schuman resonance or not. When shielded from the earth's magnetic field in underground rooms, subjects developed irregular and chaotic biological rhythms with disturbances in

sleep, body temperature, and urination. Normal rhythms were restored when they were exposed to a weak electromagnetic field of 10 Hz, which mimicked the earth's field. Studies demonstrate the effectiveness of pulsed magnetic field therapy using 10 Hz and other frequencies in the treatment of pain, bone fractures, sprains, Alzheimer's Disease, venous insufficiency, epilepsy and depression.

One part of our body that is particularly sensitive to magnetic fields is the pineal gland, located in the centre of the brain. Between 20 to 30 percent of pineal cells are magnetically sensitive, and they can respond to magnetic field changes with fluctuations in the production of melatonin, which helps to regulate body rhythms.

Brain wave patterns and bodily symptoms are affected by the frequencies produced by the Schumann resonance. In a controlled setting, subjects exposed to frequencies of 3 Hz experienced headaches, tightness in the chest, sweating palms and a slower reaction time, while subjects exposed to fields of 8-10 Hz had faster reaction times. The space between the surface of the earth and the ionosphere is higher at night, and as the resonant cavity increases, the frequency of the Schumann resonance decreases, just as a stringed instrument such as a cello (with a larger resonant cavity) produces a lower sound than a violin, which has a smaller resonant cavity. This nighttime change in the Schumann resonance causes a slowing down in the activity of our brainwaves, helping us to sleep. Once we fully recognize our ties to the magnetic field of the earth, we can be more careful about minimizing electromagnetic interference patterns that undermine our health and sleep.

Geopathic Stress as a Health Risk

Geopathic stress refers to external electromagnetic energy generated by the earth itself or by artificially produced fields (such as those coming from cell phone towers, hydro lines, or underground subways), that disturb the frequencies directing the body's cellular processes, and may contribute to chronic illness. These fields disturb the body's electromagnetic field, its electrical system (the brain, heart and muscles) or may disrupt the conduction of energy and information through the chakras, meridians and bioelectronic network, interfering with healing.

When water flows underground in streams, springs or in metal pipes, it generates an electric and a magnetic field. If waterways cross one another underground, interfering magnetic field patterns are created above the crossing that may affect us as we sleep. Health practitioners have observed that serious illnesses, including cancer, can occur in clusters over areas of geopathic stress.

In the mid 1900s a German medical doctor, Ernst Hartmann, discovered an intersecting grid of magnetic field lines just over eight inches thick that lace the earth in a north-south and east-west direction every 6-8 feet and hold either a negative or positive charge. These are called Hartmann lines. Areas where these grid lines cross can create energetic disturbance patterns above them. Dr. Hartmann documented many cancer patients who were exposed to geopathic stress, and was convinced that there was a connection. A 2003 Russian study determined that in utero and early infancy exposure to geopathic stress could predispose an individual to cancer later in life – specifically cancers of the breast, ovary, lung, bladder, prostate, liver, Hodgkin's disease and lymphoma.

A second set of electromagnetic lines emanating from the earth was found that travel diagonally to the poles and are about 3 meters apart, although this can vary. This is called a Curry net after one of the men who discovered them. Disturbance patterns may be created where these intersect as well.

If you or a patient has been feeling unwell since a move, or since sleeping in a new location, or if one has cancer or any neurological condition, investigate geopathic stress. Sites can be assessed by experienced

dowsers or with sensitive magnetometers (available from Alphalab Inc in the U.S.). Vega testing, or other forms of electrodermal testing, may be able to assess whether one is affected by geopathic stress. Experiment by moving the bed to the other side of the room or by sleeping in a different location for a time while observing symptoms.

Electromagnetic Pollution

Human activities generate extremely low-frequency electromagnetic fields (ELFS), radio waves, microwaves, X-rays and gamma rays, contributing to electromagnetic "pollution", which undermines our health. Some of the documented effects of long term exposure to artificial electromagnetic fields (EMFs) in the extremely low frequency, radio wave and microwave frequencies are:

• increased incidence of breast cancer in women and men exposed occupationally to extremely low-frequency electromagnetic fields. 60 Hz magnetic fields enhance breast cancer cell proliferation by blocking melatonin, which would ordinarily help protect our breasts from cancer.

• some, though not all studies show a rise in breast cancer risk in women who use electric blankets, proportional to the number of years of use, the number of seasons used and the length of time of use during sleep.

• a higher risk of neurological disorders such as amyotrophic lateral sclerosis (ALS) and multiple sclerosis (MS) in employees in the utility industry exposed to extremely low-frequency 50 Hz fields

• female radio and telegraph operators exposed to extremely low-frequency (50Hz) fields and radio frequencies are more susceptible to breast cancer

• increased incidence of childhood leukemia in children exposed to extremely low-frequency electromagnetic fields emanating from the generation, transmission and use of electricity

• increased mortality rates for all cancers and leukemia in certain age groups living within 2 km of an AM radio broadcasting tower of over 100kW
•some, though not all, studies show that microwave exposure from cell phone use increases the risk of tumours in the head, including acoustic neuroma and uveal melanoma

• a slowing down of brain waves as measured by an EEG while individuals were using a cell phone, continuing for 15-20 minutes after the cell phones were turned off

• brain neuron damage in rats that were exposed to 15 min of 900 MHz pulsed microwaves (cell phone frequencies) and immediate changes in neurotransmitter receptors

• increased risk of hematopoietic (related to the production of red and white blood cells), and lymphatic tissue cancer in people living near TV and radio broadcasting transmitters

• people who reside near cell phone towers experience circulatory problems, sleep disturbances, irritability, depression, blurred vision, concentration difficulties, nausea, lack of appetite, headache and vertigo

• interference with the proper functioning of artificial pacemakers in individuals with heart problems

• DNA damage to bone marrow cells in rats that were exposed to 910 MHz fields (in the frequency range of cell phones) for 2 hours a day for 30 days

The Problems with "Dirty Power"

Regular "clean" power or electricity enters our homes through power lines at a frequency of 60 Hz. "Dirty power" occurs when this 60 Hz frequency is polluted with other high frequency signals (from radio waves) flowing through both the wires and through the earth. Over 70 percent of the electrical current returns to the utility power substation through the earth, rather than through wiring as intended, because the wires are overloaded with high frequencies generated by modern electronics, such as computers, VCRs, fax machines, and televisions.

Electricity returns to the substation by the path of least resistance, which may be the ground, plumbing, people and animals, and we may unwittingly become part of an electrical circuit when we stand on a lawn or wash dishes in our homes.
Studies on dairy cows have found that they produce less milk when exposed to electrical currents coming from the ground or traveling through their water supply. Increased incidence of disease, low reproductive capability, harmful changes in the composition of the cerebrospinal fluid that nourishes the brain and spinal cord, and increased deaths in cows and calves are common in herds exposed to excessive electricity.

In humans, health problems related to "dirty power" have been termed "radio wave sickness". Dr. Magda Havas from Trent University found that many individuals with multiple sclerosis were dramatically improved when filters for dirty power were installed in their homes. Symptoms of dirty power exposure may include:

Neurological: headaches, dizziness, nausea, poor concentration, attention deficit disorder, memory loss, irritability, depression, anxiety, insomnia, fatigue, weakness, tremors, muscle spasm, numbness, tingling, altered reflexes, muscle and joint pain, leg/foot pain, flu-like symptoms, fever, epilepsy, stroke, paralysis, multiple sclerosis, ALS, Alzheimer's disease, Parkinson's disease.

Cardiac: palpitations, arrhythmias, chest pain or pressure, blood pressure irregularities, slow or fast heart rate, shortness of breath.
Respiratory: sinusitis, bronchitis, pneumonia, asthma

Dermatological: skin rash, itching, burning, facial flushing

Eye Symptoms: pain or burning in the eyes, pressure behind the eyes, deteriorating vision, floaters, cataracts

Other: digestive problems; abdominal pain; enlarged thyroid; ovarian pain; dryness of the lips, tongue, mouth and eyes; excessive thirst; dehydration; nosebleeds; internal bleeding; hypoglycemia or diabetes; immune dysregulation; hair loss; teeth pain; poor sense of smell; ear ringing; chronic fatigue; fibromyalgia; cancer.

Although this is a very broad list of symptoms, the susceptibility to radio wave sickness should be taken seriously, and whenever a mix of the above symptoms is present, the home and work environments of the individual should be measured for high frequency waves that overlay the 60 Hz wave form produced by "clean" electrical power.

Detecting Electromagnetic Pollution and "Dirty Power"

Electric fields, magnetic fields and radio/microwave fields can all be measured separately on one instrument called a Trifield Meter, available from Alphalab Inc. in the U.S. at http://www.trifield.com

(http://www.trifield.com). I lend these meters out to patients and ask them to record the values in their homes. Prolonged exposure to a magnetic field higher than 2 mG can be detrimental to health, as can chronic exposure to radiowaves or microwaves.

Dirty Power is measured by plugging a specially designed instrument into an electrical outlet. The instrument first filters out the clean 60 Hz wavelength (which may be harmful by itself) and then registers the high frequency fields above 10,000 Hz, which significantly add to the total electrical pollution. This instrument can be ordered from http://www.bio-ag.com (http://www.bio-ag.com). If both of these devices are used, most of the potentially harmful fields (with the exception of geopathic stress) will be detected.

How to Decrease Electromagnetic Pollution:

Although the electromagnetic pollution around us is invisible, it can cause harm. We are exposed to these fields daily, within our homes and workplaces. Pay attention to the location of hydro lines, cell phone towers and AM radio transmission towers. To decrease your exposure to electromagnetic pollution, consider the following guidelines:

1. Keep a 'safe' distance from the source of electromagnetic fields – at a distance of 2½ feet, the fields are 80% less powerful. Move televisions, power bars, clock radios and lamps at least 2½ feet from your bed or where you sit for long periods of time. Walls do not stop magnetic fields, so be aware of the location of your electric service panel, your electric meter, wiring in your walls, wireless Internet routers/antennae and transformers for electronic gadgets – and place furniture or beds away from these areas.

2. Keep EMFs under 1 mG in the bedroom.

3. Avoid using electric blankets, heating pads and water beds.

4. Sleep in a dark room at night.

5. Do not use a microwave oven. Remove it from your home.

6. Use less electricity, fewer electrical conveniences, and try living without a dishwasher, a clothes dryer, or a television.

7. Turn off or unplug all electrical devices when not in use, including your computer.

8. Use a wind-up watch rather than one with a quartz crystal or battery.

9. Do not buy a house or live within 2km of a cell phone tower or AM radio transmission tower; 60- 200 feet from distribution lines and 300-1,000 feet from transmission lines. Cell tower strobe lights will cause emissions of "dirty power".

10.Use a regular phone, rather than a cordless phone or cell phone. The cordless phone emits a high frequency field. The cell phone exposes your brain to microwaves. Have your phone company install a radio frequency filter on your phone line to cut out these frequencies.

11.Steel-belted radial tires can expose car passengers to fields as high as 50 mG, which is too much if you are spending hours a day in a car. Arrange your life so there is less time spent in a car.

12.Do not use touch lamps or halogen lights or the new spiral energy efficient bulbs.

13.Hire an electrician to: a) inspect for and eliminate loose or poor connections; b) replace poorly made switches, fixtures and appliances; c) replace dimmer switches with regular On/Off switches; d) make sure the wire between the meter and your electrical box is wide enough so it doesn't bottleneck high frequencies.

14.Have your utility company trim branches bumping or touching overhead wires; and ask them to replace split-volt connectors with crimp-on connectors if the split-volt connectors are on your line.

15.Design your office so that your exposure to EMFs from computers, photocopiers and printers is less than 2 mG (0.2 microteslas).

16.Purchase high frequency filters from Stetzer Electric (email dave@stetzerelectric.com) and plug these into your electrical outlets to reduce dirty power. You will need about 20 of these for an average house. Educate your neighbours to do the same.

17.Use rubber gloves when washing dishes or stand on a non-conductive rubber or cloth mat to block the flow of electrical current into your body.

18.If you live off the grid and have alternative (solar or wind) power, install filters to clean up the wave form the inverter generates.

About the Author

Sat Dharam graduated in 1989 from the Canadian College of Naturopathic Medicine with awards in homeopathy and psychology. She holds both B.Sc. and B.A. degrees from the University of Guelph and a diploma in fine art from the Ontario College of Art. Sat Dharam was awarded the "Naturopathic Doctor of the Year" award by the Ontario Association of Naturopathic Doctors in 2000 for her work in breast cancer prevention and environmental education.