

Electrical Pollution
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When we think of pollution we often think of chemical or biological contaminants in our food, water or air. Another form of pollution that is becoming increasingly ubiquitous and is neither chemical nor biological is electromagnetic pollution generated by electricity and wireless electronic devices. Electromagnetic pollution, called electrosmog in Europe, has been associated with various types of cancers; miscarriages; Lou Gehrig's disease; and a complex of symptoms referred to as electromagnetic hypersensitivity (EHS), which include excess fatigue; body aches and pains; headaches; sleep disorders; depression; anxiety; gastrointestinal problems; dizziness; memory loss; difficulty concentrating; tremors; itchiness, redness and prickling sensations of the skin; noise bleeds; ringing in the ears; etc. (Havas 2000, Firstenberg 2001, California Department of Health Services 2002).

The World Health Organization (2004) defines EHS as "a phenomenon where individuals experience adverse health effects while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs) . . . Whatever its cause, EHS is a real and sometimes a debilitating problem for the affected persons . . ." Estimates of how many people are affected by EHS range from less than 2% for those with severe symptoms to more than 35% with less severe symptoms. EHS is now on the agenda for the Health Protection Agency in the UK (2005) and is recognized by the Irish Doctors' Environmental Association (IDEA, 2005).

Most of the research on electromagnetic pollution within the non-ionizing range has focused on low frequencies associated with our use of electric power and commonly referred to as power line frequencies (50/60 Hz) and high frequencies associated with our use of wireless devices in the radio frequency range (MHz and GHz). The former travels along wires and the latter radiates through the air.

One area that has received sporadic and relatively little attention until recently is deteriorating power quality. Poor power quality, also known as dirty electricity, refers to anything that deviates from a 60-Hertz sine wave and includes transients and harmonics on the electrical wires. This form of pollution has characteristics of both the low and high frequency electromagnetic energy mentioned above since it flows along wires and radiates from them. It can also flow along the ground and into buildings through plumbing and other metal structures.

Ground current was first noticed as a serious problem on farms, where it was associated with reduced milk yield, increased mastitis, foot sores, and miscarriages in dairy cattle; as well as miscarriages and poor health in farm families. As the utility infrastructure continues to age and as more of the unbalanced load is returned via the ground rather than on the neutral wire, a larger area is being contaminated by ground

current and more people are exposed. Contact with plumbing, at the kitchen sink or in the bathtub causes current to flow through the body at levels that may exceed existing guidelines for cancer (Kavet et al. 2000).

Dirty electricity is produced inside buildings and along power lines. Electronic devices such as computers, plasma TV, dimmer switches, and variable speed motors generate dirty electricity as does arcing, due to loose electrical connections and to trees coming in contact with electrical wires. Dirty electricity and other forms of electromagnetic smog may contribute to sick building syndrome, which-until now-has been attributed exclusively to poor indoor air quality.

Our research shows that dirty electricity has adverse biological effects and may be contributing to high blood sugar among some diabetics and may be exacerbating the symptoms of MS and possibly other neurological diseases.

Electromagnetic pollution is becoming a serious problem and may be affecting the health and wellbeing of millions of people worldwide. Removing current from the ground and filtering the dirty electricity are partial solutions to a growing problem that needs to be comprehensively addressed by policy makers, medical professionals, the manufacturing and telecommunication sector and the electric utilities. Reluctance to address this issue in a timely fashion will produce needless suffering among those who are already electrically hypersensitive and may contribute to a growing number of people who become diagnosed with EHS.