Graham/Stetzer Filters Improve Power Quality in Homes and Schools, Reduce Blood Sugar Levels in Diabetics, Multiple Sclerosis Symptoms, and Headaches.

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Summary

Graham/Stetzer filters significantly reduce radio frequency electrical noise on indoor wiring--generated by computers, energy efficient lighting, dimmer switches, and entertainment units within the home or workplace and transported into buildings by power lines from neighbouring property. The resultant improvements in power quality in homes and in schools are associated with fewer and less severe headaches, more energy, lower blood sugar levels for diabetics, and improved balance for those with multiple sclerosis. Results are observed within a matter of hours or days. Cases studies for blood sugar, multiple sclerosis, and general wellbeing are presented.

Introduction

Exposure to electromagnetic fields has been associated with an increased incidence of childhood leukaemia and miscarriages with residential exposure and with an increase in adult leukemia, brain cancer, and breast cancer with occupational exposure (see review by Havas 2004). In addition to these serious illnesses, an increasing number of people claim to be electrically sensitive. An estimate of the prevalence of self-reported hypersensitivity to electric or magnetic fields is between 1 and 2 percent in the general Swedish population (Hillert *et al*. 2002). Symptoms include headaches, flu-like symptoms, chronic fatigue, fibromyalgia, poor quality sleep, tightness in the chest, eye discomfort, skin disorders, dizziness, nausea, and difficulty concentrating (Levallois, 2002).

While power frequency (50/60 Hz) electromagnetic fields and particularly the magnetic flux density have been associated with a number of these complaints, it is possible that some of the biological reactions are due to dirty power. Dirty power refers to high frequency transients, harmonics, and other noise on electrical wiring. It can be generated inside buildings by electronic equipment and it can enter the home through wiring from nearby sources including wireless telecommunication antennas connected to the power grid. When the capacity of the primary neutral on distribution lines is exceeded, current runs along the ground and enters homes via grounded water pipes. Wertheimer *et al*. (1995) reported increased cancer risk (OR 3, 95% CI 1.33-6.67) for children in homes with conductive plumbing.

If dirty power is indeed responsible for some of the symptoms mentioned above then removal of dirty power should alleviate these symptoms. Graham/Stetzer Filters are designed to reduce high frequency electrical noise within the range of 4 to 100 kHz on indoor wiring (Graham 2002, 2003). What follows is a summary of the response of individuals who have used Graham Stetzer filters on indoor wiring.

Case Studies

Diabetes

Diabetes is on the increase. In the United States, 16 million people are diagnosed as diabetic and more are suspected of having this disease. Case studies show that blood sugar levels are associated with dirty power on internal wiring as well as radio frequency radiation and can change quickly as one moves from a "dirty" to a "clean" electrical environment.

A 51-year old male, recently diagnosed as diabetic, had higher blood sugar levels when the dirty power exceeded 10 mV (peak to peak) (Figure 1). Ideally blood sugar values should not exceed 200 mg/dL. The blood sugar value of 277 mg/dL at 250 mV (Figure 1 insert) is a real point, not an error. However, since it contributed disproportionately to the correlation co-efficient it was removed. The resultant data still give a significant R^2 value of 0.75. The blood sugar levels for this individual increased when he stood under distribution lines and decreased within 20 minutes in a "clean" environment.

A 57-year old diabetic woman in New York who lives near cell phone antennas has high fasting plasma glucose levels that are associated with the radio frequency radiation in her home (Figure 2). On several occasions she drove from home (10 microW/cm^2) to a clean environment (<1 microW/cm^2) and sat in her car. Her blood sugar dropped from 225 to 191 mg/dL within 20 minutes. Upon returning home her blood sugar

increased within 5 minutes to 195 mg/dL and within 20 minutes to 226 mg/dL while she sat on a chair in her living room. She did not consume any food or medication, nor did she exercise beyond the walk to and from her car. Her symptoms (headache, nausea, and joint pain) disappeared in the car and reappeared when she returned home. She has done this repeated and while the values for blood sugar differ the trend is the same.

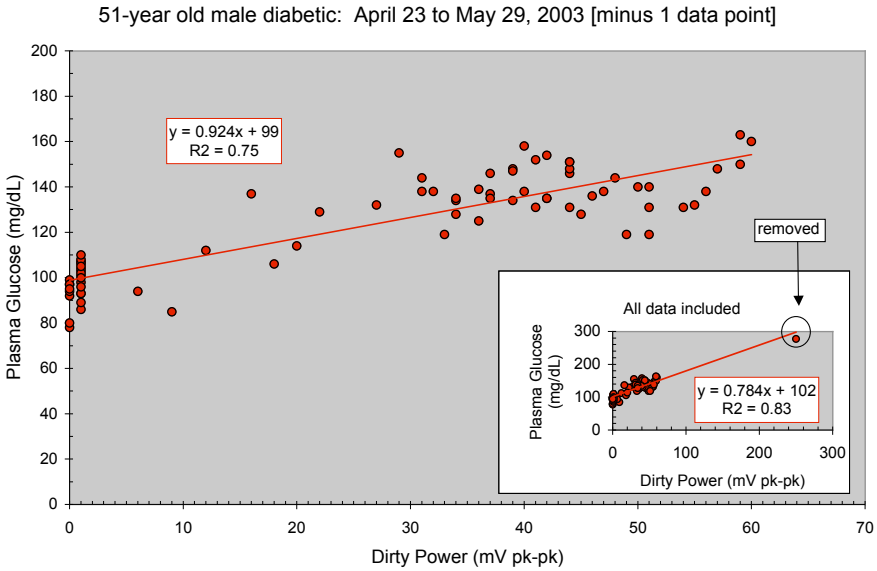

Figure 1. Dirty power and plasma glucose levels for a 51-year old male recently diagnosed as diabetic.

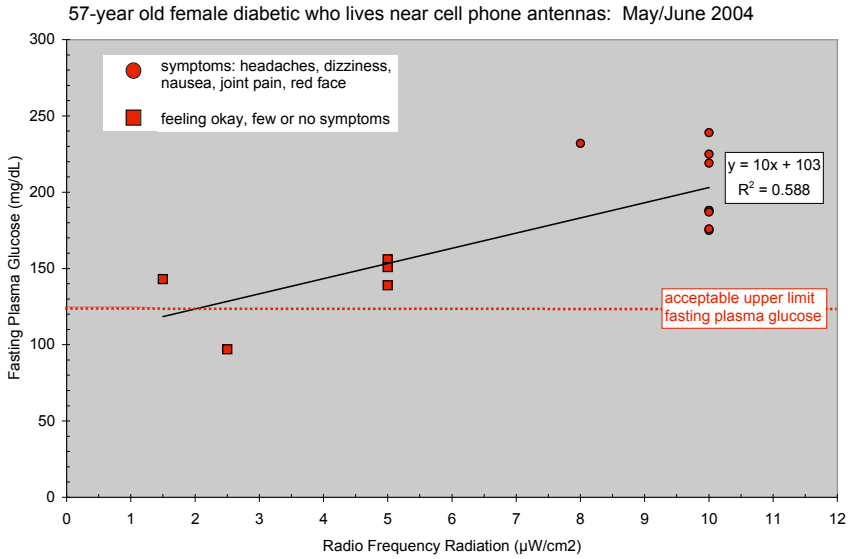

Figure 2. Fasting plasma glucose levels and radio frequency radiation from nearby cell phone antenna.

An 80-year old female diabetic had Graham/Stetzer filters installed in her home in Arizona. The dirty power dropped from 800 GS units (on average) to 13 GS units (values <50 units are recommended HSSP 2003). The week prior to the installation her fasting blood sugar levels measured at 7 am averaged 171 (range 152 to 209) mg/dL. After the filters were installed they averaged 119 (range 70 to 168) mg/dL and her intake of insulin (Humlin 70/30) decreased from an average of 36 units per day to 9 units. Fasting plasma glucose above 126 mg/dL is considered diabetic.

Multiple Sclerosis

Three individuals with mild to moderate cases of multiple sclerosis have noticed significant improvements in their symptoms after installation of the Graham/Stetzer filters. One 40-year old man, confined to a wheel chair, was able to run along the beach in Florida with his dog several months after the filters were installed.

Two other individuals, one in a wheel chair and one who walked with a cane, were able to walk unsupported within one month of the filter installations.

Of these individuals, a 33-year old female noticed improvement within 24 hours. Twelve filters, installed in her home, reduced the dirty power from an average of 170 to 33 GS units. Her symptoms, prior to the filters being installed, included muscle weakness, muscle pain, difficulty walking, joint stiffness, and joint pain that were major to severe. She also experienced dizziness, restlessness, fatigue, excessive need to urinate, difficulty staying asleep at night and waking up in the morning. Within the first 24 hours she was able to walk around the house without a cane and was able to maintain her balance even when bending over. During the first week after the filters were installed she woke up fewer times during the night, had more energy, and experienced less dizziness.

General Well Being

A family in rural Wisconsin developed severe headaches after some home renovations during the fall of 2002. The children were home schooled and the headaches for all family members seemed to coincide. The mother developed migraines and the younger children experienced headaches that were so severe they would roll on the floor in pain. The father, who worked away from home all day, experienced these headaches only on weekends or during holidays. After they installed the Graham/Stetzer filters their headaches went away and the mother's thyroid problems required less medication. Their headaches returned during spring thaw. Dirty power came into their home from the distribution line along the ground and on the wiring. They have since gone off grid and have disconnected the utility ground at the pole. Two of the children are diabetic and both had lower blood sugar levels and required less insulin after the Graham/Stetzer filters were installed.

School Study #1: Graham/Stetzer filters have been installed in the classrooms of two schools for which data are available. One school, a private school (grades 1 to 12) in Toronto, Canada had 50 filters installed during the winter of 2003 (Havas and Illiatovitch 2004). This reduced, but did not eliminate, the dirty power. Teachers were asked, with no knowledge of the nature of the research (single blind), to complete a questionnaire daily for a 6-week period (3 weeks with and 3 weeks without filters) between January and March 2003. Twenty-two (out of 49 staff) completed the questionnaire enough times to enable statistical analysis.

While the filters were installed teachers were less tired, less frustrated, and less irritable with fewer headaches and body pain (Figure 3). They were better able to focus and had better health, improved mood, and greater sense of accomplishments. Of these 22 teachers, 3 teachers (14%) experienced no change in any of the questions asked while the filters were installed. Eleven teachers (50%) showed some improvement in at least one of their symptoms, another 6 teachers (27%) had some symptoms that got better while others got worse, and another 2 teachers (9%) experienced only worsening of their symptoms while filters were installed. Overall, 7 teachers (32%) experienced statistically significant improvements and only 2 (9%) experienced worsening of their symptoms.

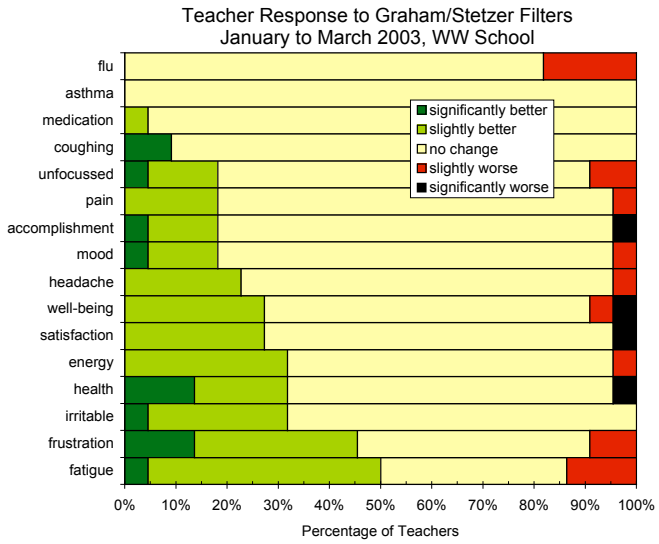

Figure 3. Response of teachers at WW School to improved power quality with Graham/Stetzer filters.

Teachers also documented student behaviour (but not student health) in this questionnaire. The student response was not as clear as that of the teachers. The major difference was that students were less disruptive in

the classroom while filters were in place although this may have had some seasonal influence as well. This is a preliminary study that needs to be repeated in other schools.

School Study #2: A school in the Melrose-Mindoro School District in western Wisconsin had previously been categorized as a "sick" building but attempts to remove mold, which was assumed to be the problem, did nothing to alleviate symptoms among the staff. After installation of the Graham/Stetzer filters both teachers and students had more energy. The school nurse documented these changes (www.electricalpollution.com). Of the 37 students with inhalers only 3 used them for exercise-induced asthma before physical education classes. Staff with allergies took less medication and students with migraines experienced less pain. Teacher absences for health-related reasons were dramatically reduced after the filters were installed. The increase in modern electronics inside the school and "dirty" power from similar sources outside the school were to blame.

Conclusions

These results strongly support the contention that blood sugar levels among diabetics, MS symptoms, headaches, and fatigue are associated with dirty power (high frequency electrical noise on electrical wiring). It is possible that some of the cancers associated with high magnetic fields may also be affected by dirty power. The results from these very few case studies are so dramatic that they are worth further investigation. Graham/Stetzer filters enable people to improve power quality in their home and place of work. Ideally manufacturers of electronic equipment (computers, entertainment units, energy efficient lighting, variable speed motors) should filter the noise before it gets onto the wire and power distributors should minimize this dirty power on their lines. They should also increase the capacity of their neutral returns so that less dirty power flows along the ground as ground current. If the Graham/Stetzer filters are as effective as they appear to be in these case studies, then the dirty power in schools, homes, and offices can be reduced until better legislation is in place or existing standards are enforced (IEEE 1992 and HSSP 2003) to minimize the production and distribution of this form of dirty electricity.

Acknowledgements

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