

ELECTRICAL SENSITIVITIES and the ELECTRICAL ENVIRONMENT

Cyril W. Smith, Ph.D.

A shortened and edited version of notes written for and in cooperation with The Breakspear Hospital, Hemel Hempstead, HP2 4FD, U.K. The writer has been helping their electrically hypersensitive patients since 1982.

What are Electrical Sensitivities?

Many persons suffer from sensitivities to certain foods and environmental chemicals which cause them discomfort, or even in extreme cases prevent them from functioning in any effective manner. Even the most minute amounts of these substances may on occasions 'trigger' reactions which are specific to each individual. Warnings regarding nuts, peanuts or gluten are commonly found displayed on food products. When a sensitivity reaction occurs, some regulatory system within the body has ceased to function properly and gives alarm signals, calling for an unjustified panic reaction. Usually, it is the autonomic nervous system (ANS) which is the first to become compromised in this way. This system controls all the involuntary body functions. Thus, any part or function of the body might become affected by the same allergen acting in different people which is why such effects do not show up in medical statistics.

Those who have already acquired several chemical hypersensitivities and which are 'on-going' are at particular risk of acquiring electrical sensitivities as an additional problem. The allergen 'triggering effect' may transfer from a minute amount of some chemical in the environment to some patient-specific frequency of an electromagnetic field in the environment. Usually, it is the same patient symptoms that continue to be 'triggered'. It is the *frequency* of the electromagnetic field that matters, once some patient-specific threshold of intensity or field strength has been exceeded. The range of effective coherent frequencies extends from below a thousand seconds per cycle (circadian rhythms) through audio- and radio- and microwave-frequencies to visible light. All these effects are 'non-thermal': the electrical power is insufficient to produce any significant heating. It is the *frequency* that matters. In technical terms, it is the spectral power density or the *watts per cycle of bandwidth* of the radiation which matters. The more precise the frequency – the less power is needed to produce an effect.

Germany has introduced the WHO International Classification of Diseases Code T78.4 for 'Chemical-Sensitivity Syndrome Multiple', against which this can be reported and statistics collected. There is no electrical equivalent WHO Classification to date but it would seem reasonable for these cases to be recorded as a complication of multiple chemical sensitivities. Sweden regards electrical sensitivity as a *disability* with the implication that all public places must be fit for the electrically sensitive disabled person to be in.

The Electrical Environment

Such persons may experience problems from the natural electrical environment beyond what is normal such as the influence of light on melatonin levels. Electrical or acoustic (even sub-audio) frequencies from approaching weather fronts or thunderstorms may become troublesome. Eventually, there may be a hypersensitivity to sunlight.

Fluorescent lighting and lasers at check-outs may make shopping difficult, particularly if inhalants such as chemicals on in-store fabrics provide an initial chemical sensitisation. The patient may experience problems when near any electrical equipment such as power lines, radio- TV- or mobile phone transmitters, tape or DVD-recorders, computers, mobile phones, satellites or in fact any one of the multitude of electronic devices in the modern environment. It is not necessary for an electrical device to be active, any passive resonant circuit may suffice; this could be the resonant frequency of a row of metal railings in the street. Persons may become aware of actually having electrical devices malfunction when they handle them or, even when in their vicinity.

The female characteristic is towards chronic sensitivities appearing at an early stage, resulting in being labelled as "over-anxious"; the male characteristic is for no reaction until the onset of a sudden and disabling crash which may

result in the person becoming completely unable to function normally.

The hazard of chronic over-exposure to electrical frequencies is one of **adaptation to symptoms** triggered by a particular pattern of frequencies until they become indistinguishable from a **disease condition**. The problem seems to arise when the frequency pattern of a toxic chemical in the body matches that of the person's electrical environment. It is the frequencies in the electrical environment which makes the body think it is under chemical attack.

Typical Subjective Symptoms Relating to Electrical Sensitivities

Drowsiness, malaise and headache, mood swings, tearfulness and eye pain, poor concentration, vertigo and tinnitus, numbness and tingling, nausea and flatulence, convulsions, noise sensitivity, alteration in appetite, visual disturbances, restlessness, blushing.

Clinical Observations Relating to Electrical Sensitivities

Changes in respiration, heart rate changes (heart rate variability analysis is a good indicator of the status of the ANS), eye pupil dilation, perspiration or lack of it, muscular weakness, loss of visual acuity, speech or writing difficulties, loss of consciousness, convulsions.

At the Breakspear Hospital, about 10% of all patients with chemical, nutritional or particulate sensitivities had acquired electromagnetic sensitivities. Tests often showed stress coming from some common environmental frequency such as the power supply (50Hz in UK, 60 Hz in North America) or the 2.45 GHz frequency of microwave cookers and other devices using this frequency.

Patients' reactions were triggered over a very wide range of frequencies for which at first there was no recognisable pattern. Then it was realised that 7.8 Hz often appeared. Measurements quickly revealed that 7.8 Hz was the endogenous frequency of the heart acupuncture meridian. The endogenous frequencies of other acupuncture meridians also appeared when these were under stress. The frequencies on acupuncture meridians are very precise; for 53 heart meridian frequencies from 38 patients, the mean was 7.788 Hz (standard deviation $\pm 0.92\%$). This frequency is used in some therapeutic or environment protection devices and it occurs in radiation from the Schumann Bands in the upper atmosphere to which we are all exposed.

Sensitivities to Foods and Chemicals

About 1-in-6 of a 'population' is usually considered to have some degree of impaired function due to an allergic reaction to the environment or to food. Repeated exposure to a frequency while a person is reacting to some other allergic trigger may link that specific sensitivity pattern to that frequency, so that the same reaction is triggered on encountering either the frequency or the allergen on a subsequent occasion. In general, the patient's pattern of response is the same whether the trigger is chemical, biological, particulate, nutritional or electrical – *it is characteristic of the patient.*

Exposure to pesticides or herbicides seems to enhance or even create electrical sensitivities. Formaldehyde is a very good sensitizer. Ionising radiation exposure (e.g. long-haul flights) represents an additional stress factor. A few persons may become hypersensitive to light, some to sunlight, or to the light of the mercury vapour spectrum, which is superimposed on the emission from fluorescent tubes and energy-saving lamps.

Dental fillings may cause problems due to electrolytic currents between amalgam fillings containing different mixtures of metals or, between fillings and surrounding tissue. Patients have been seen with black stains on the palate due to the electrolytic transport of mercury. Amalgam-to-tissue contacts may detect environmental frequencies such as radio transmissions just like a cat's-whisker crystal set. There has been a case where a dentist heard music coming from a patient's mouth. The mercury toxicity frequency and a mobile phone frequency unfortunately happen to stress the parasympathetic branch of the autonomic nervous system.

A common feature of electrical hypersensitivity is that its sufferers complain vigorously that nobody does anything for them, such as turning off an electrical source which they know is "triggering" their reactions but, which seems to have no effect on anyone else. When a hypersensitivity to sunlight is acquired, the futility of this approach is realised but perhaps not before the sufferer has become almost paranoid about these problems.

Treatment

When patients have acquired a high degree of sensitivity to many factors in foods and/or the chemical environment (multiple-sensitivities), they are very likely to have acquired an abnormal sensitivity to their electrical environment as a part of this 'package' of symptoms. It is rare to find electrical sensitivities without on-going chemical sensitivities. This electrical sensitivity can become so severe that a person becomes incompatible with technology and unable to function in the modern environment. Electrical sensitivity is not mutually exclusive of other clinical conditions; it can co-exist with and even trigger physical or mental illness. Electrical sensitivities make diagnosis and therapy more difficult. Medications may produce abnormal responses or side effects, even chronic sensitisation to the electrical environment.

A therapy for alleviating allergic reactions is called provocation / neutralisation therapy. It was developed from earlier work in the USA by Dr. Joseph Miller of Mobile, Alabama, and further developed at the Environmental Health Center, in Dallas, Texas, by Dr. W. J. Rea and at the Breakspear Hospital, Hemel Hempstead, England by its Medical Director, Dr. Jean Monro. This therapy relies on successive serial dilutions of the substance having in sequence the effects of stimulating and/or quelling the reactions that they produce. This therapy is not a substitute for eventually reducing the total body loading of triggering substances to a level that the individual can cope with which can be done by simultaneously increasing the rate of detoxification and reducing the rate of toxin intake until the body can function normally, assuming that the enzyme systems for detoxification are still intact. However, while this can produce an alleviation of the symptoms and thereby assist achieving eventual normalisation, it may not be possible to achieve this without some change in the patient's lifestyle. It is also labour-intensive and therefore expensive.

The general concept introduced by Dr. W. J. Rea is to seek to *reduce the total body load of stressors*. Which stress factors one seeks to reduce may be a matter of choice although some stresses are involuntary through exposure to the general environment. Dr. Rea has demonstrated the reality of electrical sensitivities in double-blind trials¹. The equivalent therapy for alleviating reactions to electrical frequencies involves trying to find one or more frequencies which will turn-off the body's abnormal frequency sensitivity. This is not a cure but it can help stabilise the body for more effective allergy therapy. As foods and chemicals sensitivities are brought under control and the body detoxifies itself, the electrical sensitivities usually disappear as well. Symptoms usually disappear in the reverse order to their appearance. However, it is worth noting that if a person is working or sleeping in a zone of 'geopathic stress', which may be electrical in origin, then their problems, may persist and resist therapies.

Reducing the Impact of the Electrical Environment

The sensitive person is best able to determine what affects them. It is impossible to get away from the natural electromagnetic radiation from the sun, the ionosphere, the weather and the geomagnetic field. It is almost impossible to get away from man-made electromagnetic radiation. Persons who find a deep canyon or go to the 'out-back' still get zapped when a satellite comes over the horizon. The best indicators for safer places are – mobile phones do not work, TV reception is poor and there are no overhead lines.

In the home, electricity supply meters emit large fields and may be located in a passage on the other side of the wall from a bed-head. From where the power supply reaches the house, its cable may run on an outside wall but, close to a bed. Power lines on overhead poles may act as antennae for radio and microwave transmissions and channel them into the house wiring. It is good practice to turn off all non-essential electrical circuits at night. Power frequencies may have the same effect as daylight in the arctic summer depressing the level of melatonin (an anti-cancer agent). Some biologically based shielding may be provided by pine trees which have terpene problems, cacti or spider-plants.

The power supply frequencies are in effect impossible to shield with any practical measures. Higher frequencies can be shielded by metal wire mesh, metallised fabric or aluminium foil, although these may act as mirrors to reflect the radiation elsewhere. They can also reflect self-radiation emitted by a person having an allergic reaction making it even worse. A very sensitive person may react to a quantum component of the electromagnetic field called the

1. For evidence that electromagnetic field sensitivity actually does exist and can be elicited under environmentally controlled double-blind conditions with 100% reactions to an active frequency and 0% to the placebos, see: Rea WJ, Pan Y, Fenyves EJ, Sujisawa I, Suyama H, Samadi N, and Ross GH. "Electromagnetic Field Sensitivity", *Journal of Bioelectricity* 10(1&2): 241-256 (1991).

magnetic vector potential and this cannot be shielded².

It is rare to find electrical sensitivities without previous and ongoing chemical sensitivities. If a person is sensitised chemically, the electrical sensitivity can be enhanced. Remember that electronic equipment emits chemical fumes and as these may be a trigger for reactions so they need to be ventilated. For example, a person may tolerate the electromagnetic radiation from a television set if it is enclosed in a glass-fronted box ventilated to the outside keeping fumes from the hot plastic out of the room.

Computers have different clock frequencies usually specified in terms of their speed of operation. These frequencies will be sub-divided in the process of carrying out the various computational functions. It may be possible to find a model/manufacturer whose equipment is tolerated. The flat screen displays are likely to have less emission. The pulses emitted when a mobile phone dials-up a number can imprint frequencies into the head if it is held against the ear before dialling is complete.

The eye can also be a pathway for frequencies to enter the body such as when viewing TV or a computer. Most acupuncture meridians are stimulated/stressed while viewing a light source flashing at a frequency equal to the endogenous frequency of the meridian. Frequencies greater than 0.05 Hz and less than 47 kHz have this effect as do strong visual patterns and colours. The body as a whole is sensitive to resonances in its environment, so metal structures or even electronic equipment which is not switched on may cause problems.

Computer keyboards can have a long cable or an infrared optical link to the computer unit enabling the latter to be kept at a distance. A whole building or public area may be fitted out with a wire-less internet link which cannot be avoided. There is software which enables one to dictate to a computer, so that the process of typing in a lot of text can be circumvented; only error correction and editing need be done at the keyboard.

Conclusion

It is rare to find a patient with electrical sensitivities who does not already have multiple on-going sensitivities to chemicals, volatiles and particulates. To avoid becoming electrically sensitive, one must be careful about acquiring a body load of chemicals which happen to be toxic to you because your body cannot get rid of them quickly. Then, if the frequency pattern of such substances happens to match a pattern of frequencies in your electrical environment this will make the body think it is under further chemical attack. That is why only some people are affected by their electrical environment. Engineers (chemical or electrical) work to specifications, unless they are told that certain environmental frequency patterns cause problems with certain environmental chemicals nothing will ever get done about the problem.

2. Smith C.W. Is a living system a macroscopic quantum system? *Frontier Perspectives*, 7(1), 9-15 (1998), (Temple University, Philadelphia, 1997 lecture to Frontier Sciences Department).