ELECTROMAGNETIC RADIATION & ELECTROMAGNETIC [HYPER] SENSITIVITY: A PRIMER

Abbreviations: Electromagnetic radiation, or fields (EMR / EMFs); Electromagnetic [Hyper-] Sensitivity (ES / EHS)

On 31 May 2011 the WHO ascribed a Class 2B carcinogen[1] classification to EMR. This fails to take account of the fact that the general ambient environmental EMF load has increased exponentially since that time becoming far more complex. In the intervening period more independent research has emerged which almost certainly places EMR in the Class 1 carcinogen category. Over 20,000 peer-reviewed studies since the 1938 rollout of radar attest to the biological harm which EMR is capable of causing in all living systems.

EMR can cause mild, moderate and serious short, medium and long term health issues. It emits pulsed, modulated polarised electromagnetic energy which, at the cellular level, is 7.2 million times stronger[2] than the natural electrical intra-cellular energy used by the cells of the body to communicate. It is a broad spectrum pathogen and a multi-site carcinogen. Heavy mobile phone usage has been linked in independent studies to the raised incidence of aggressive cancers such as glioblastomas and schwannomas.
([2] See under "Sources of further independent EMR/ EHS information", below)

Representing a non-exhaustive list of potential biological responses, EMR can:-

- act adversely upon the immune system and on the autonomic nervous system;
- stimulate mast cells towards an histamine response and inflammatory response, as well as degrading basic mitochondrial function;
- affect the pituitary gland and disrupt hormone secretion (notably melatonin), potentially setting off a cascade of other interdependent responses resulting from the hormonal imbalance caused;
- promote oxidative stress, leading to nitrative stress and the production of toxic peroxynitrite.
- promote 'sticky' blood, with red blood cell 'bottle-capping' (crimped cell walls with reduced surface area for vital chemical/ enzyme/ functional interaction;
- cause reduction in red blood cell activity, proportionate with exposure, leading to Rouleau formation (ie: clumping and reclined stacking, lacking movement, which fails to transport sufficient oxygen and nutrients around the body as well as failing to remove carbon dioxide and toxins from the body.
- disrupt DNA by causing breakages in the double helix strands, which then 'repair' imperfectly, potentially leading to cell malfunction and the disruption of the normal cycle of cell apoptosis.
- damage the nerve cells' myelin sheath protection through inflammation and protein alteration.
- potentially vaporize mercury in amalgam fillings in the mouth releasing toxins into the blood stream;
- breach the blood-brain barrier by opening the voltage-gated calcium channels (VGCC) to it, permitting the ingress of toxins such as mercury.

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Some of the main symptoms/ sources/ risks which can be experienced by EMR exposure:-

- Headaches (general as well as sudden and sharp)
- Nausea
- Tinnitus
- Interrupted / lack of rested sleep
- Brain fog/ inability to finish thoughts / sentences / find words
- Tingling flesh
- Restless limbs
- Fatigue
- Breathlessness / irregular breath
- Irregular heartbeat/ heart palpitations/ chest pain
- Dizziness

Specific studies evaluated by the Bioinitiative Report have linked RFR and ELFR exposure to an increased risk of:-

- Leukemia
- Brain tumors
- Neurodegenerative diseases such as Alzheimer's and ALS
- Genotoxic effects
- Leakage across the blood-brain barrier
- Decreased immune function
- Increased inflammatory response
- Miscarriage
- Low sperm count and motility
- Poor cognition and memory
- Hyperactivity in children
- Insomnia
- Altered brainwave activity

EHS is categorised "functional impairment" in Sweden; WHO International Classification of Diseases code (ICD-10); International Classification of Functioning, Disability and Health (ICF). This term leaves scope for the view that EHS is psychosomatic when the list of bio-chemical response to EMR, as listed above, on Page 1, indicate that the symptoms they cause cannot be in the mind.

Source websites for further independent EMR/ EHS information:

- www.bioinitiative.org
- phiremedical.org
- www.es-uk.info
- ehtrust.org
- https://www.wildlifeandwireless.org/
- www.radiationresearch.org
- magdahavas.com
- www.powerwatch.org.uk [2]

Most of these websites have resources, research and studies pages with much useful information regarding EMFs and EHS. Look also for online video presentations by Dr Erica Mallory-Blythe BSBM, founder, PHIRE, or Dr Devra Davis, founder, Environmental Health Trust.

Book references:-

Electromagnetic Sensitivity & Electromagnetic Hypersensitivity - A Summary: Michael Bevington
Dirty Electricity - Electrification and the Diseases of Civilization Author: Dr Sam Milham, MD
Powerwatch: Alasdair & Jean Philips
Disconnect: Dr Devra Davis
The Invisible Rainbow: Arthur Firstenberg
Dirty Electricity: Samuel Milham MD MPH
A Wellness Guide for the Digital Age: Dr Kerry Crofton
The Body Electric: Robert O Becker MD & Gary Selden
Overpowered: Martin Blank PhD
Cross Currents: Dr Robert O Becker
The Field: Lynne McTaggart
Phonegate: Dr Marc Arazi
Currents of Death: Paul Brodeur
EMF Off!: Olga Sheean

Some suggested websites may have links to other independent researchers in the field of EMFs, such as:-

1. Martin Pall - Professor Emeritus, Washington State University;
2. Dr Magda Havas - Professor Emerita, Trent University in Canada;
3. Dimitris J Panagopoulos - Choremeion Research Laboratory, Medical School, University of Athens, Greece;
4. Olle Johansson - Professor Emeritus, Institute of Environmental Medicine, Karolinska Institutet;
5. David O. Carpenter MD - Professor, Environmental Health and Toxicology, School of Public Health, State University of New York at Albany;
6. Dr Lennart Hardell - Professor in Oncology and Cancer Epidemiology at the University Hospital in Orebro, Sweden.

A sledge-hammer to crack a walnut:

UK wireless signal strength is so powerful, as permitted by UK government, that even with over a 90% reduction, a viable connection is possible. Mobile phones can work down to a signal strength of less than 0.00003 V/m. Natural background EMF is 0.00002 V/m.

The implications of removing any internal sources of wireless involve changes to normal daily life at personal and family levels. However, hard-wired communication is the only healthy option and almost everything which can be carried out wirelessly can also be carried out over a hard-wired connection which, is generally faster, more secure, and not prone to drop-out.

Cost and convenience are substantial factors but, even in a difficult signal area, there are usually ways around any problems by hard-wiring, using an ethernet.

For the sake of all occupants, as well as vulnerable groups (eg: those with any level of environmental electro-hypersensitivity, babies, children and young people up to their early twenties, and for pregnant women, modification of behaviour by use of the following should all be considered, in the order set out below:-

1. Limit the duration of exposure (switching off all sources for the late evening and the entire night time sleep phase of the day is particularly imperative;
2. direct personal shielding and associated earthing;
3. selective shielding and earthing to parts of the building envelope;
4. whole house shielding and earthing to the entire building envelope;
5. isolation (ie: fully disabling, or switching off);
6. removal of the occupant(s) from the area affected by the source of influence.

ICNIRP and EMR / EMF Guideline origins:

ICNIRP (the International Commission for Non-Ionizing Radiation Protection) is an unelected self-appointed (and therefore not a "Commission") international NGO, based in Germany. The vast majority of world governments choose to follow its 'guidelines'. The membership and has known, long-standing ties to the telecommunication industry with which it enjoys a 'revolving door' relationship, thus compromising the ICNIRP's impartiality.

The guidelines which ICNIRP supports and which most of the world nations promote to the public as the officially recognised 'science' have their origin in a report commissioned by the US Navy in 1953 from a bio-medical engineer named Herman P Schwan. He was brought to the USA under "Operation Paperclip", immediately following the end of World War II, having been a scientist working for the Nazi regime in Germany.

Telecommunications are immeasurably different some seventy years later, being more powerful, moving more data and utilizing many more frequencies over greater bandwidths. However, the ICNIRP guidelines remain almost unchanged, except for the fact that certain safety considerations (eg: deletion of "vulnerable groups") have either been reduced or eliminated and the guidelines now cover the entire EMF spectrum between 0 and 300 GHz to make way for millimetre wave technology and the latest 5G generation.

Under the ICNIRP guidelines, current safe levels for 4G exposure (1.8GHz) are deemed met below 61.4 V/m (Volts/metre, or electrical field strength).

For the very EHS the SBM-2015 Building Biology guidelines advise safe EMF levels in sleeping areas between 0.002V/m and 0.02Vm. The figure, more, generally for the electro-sensitive community, is below 0.05V/m [3].

([3] See powerwatch.org.uk/science/intguidance.asp)

Contrary to wider government agency and other industry sponsored information, it is asserted that non-ionising radiation may become ionising radiation at a power density level of 10 electron Volts (e-V).

[1] **Class 2B carcinogens** (A partial list)**:-**
petrol engine exhaust; diesel engine exhaust; diesel fuel, marine fuel oils, residual (heavy); implanted foreign bodies of metallic cobalt, metallic nickel and an alloy powder; methylmercury compounds; polychlorophenols; 4-chloronitrobenzene; 4-vinylcyclohexene; ethylbenzene; cobalt sulfate.

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