Understanding electromagnetic hypersensitivity (EHS)

openaccessgovernment.org/article/understanding-electromagnetic-hypersensitivity-ehs/186204

10 December 2024

Electromagnetic hypersensitivity: Michael Bevington, Chair of Trustees at Electrosensitivity UK, explains the health risks associated with exposure to radiofrequency radiation and electromagnetic fields and why more robust action is needed to protect public health

Electromagnetic Hypersensitivity (EHS) is a physical reaction to radiofrequency radiation (RFR) and electromagnetic fields (EMFs). These come from mobile phone masts, mobile phones, Wi-Fi, Bluetooth, smart meters, and similar devices, as well as power lines and electric motors.

Typical short-term symptoms are headaches, dizziness, brain fog, memory loss, muscle pains, heart palpitations, anxiety, depression, nosebleeds and skin rashes. Long-term symptoms, often subconscious, range from cancer and infertility to neurological and cardiovascular harm.

Short-term symptoms cease when the RFR and EMFs causing them are removed. Long-term symptoms can be irreversible.

Identifying the effects of Electromagnetic Hypersensitivity

One problem in recognising EHS is measuring RFR and EMFs when no one can see them, and few can feel them. Consequently, it can take years for someone to link their symptoms to these exposures. Perhaps 95% never make this link, especially where RFR and EMFs are synergistic with other pollutants such as air particulates or chemicals.

Another problem is cumulative and delayed effects. People with EHS may not react immediately but over hours, days and weeks as their bodies become increasingly ‘hyper’ sensitive. Genomic changes may take years to appear.

Thirdly, effects can be different on different occasions. Thus, temperature changes, having eaten or being hungry, time of day, and humidity can all cause different effects from specific RFR or EMF exposures.

Fourthly, most effects are subconscious. Frequency and amplitude RFR modulations produce low-frequency effects. Plant sensitivity to geomagnetic disturbances from the 11-year sunspot cycle was recognised 200 years ago, and human sensitivity more recently, where changes in magnetic fields can affect every cell membrane. People with EHS can react to increases of five nanoTesla (nT) in a manmade magnetic field of, say, 12 nT. Although many cancers are subconscious, people with EHS may feel acute symptoms around the affected tissues for cancers affected by RFR or EMFs.

Fifthly, the mechanisms are complex. Animals use geomagnetic fields for navigation, involving quantum processes, such as the radical pair mechanism, in cryptochromes and biomagnetite, also found in humans. Downstream pathways include voltage-gated channels, iron levels and compromised myelin.

Quantifying and diagnosing people with EHS

All human brains appear sensitive to natural EMFs. In the theta range, these include the Schumann Resonance, which encircles the earth at 7.83 Hz and is linked with sleep and decreased anxiety.

For manmade RFR and EMFs, there is a wide spectrum of sensitivity. Children's neurological development is especially sensitive, and autism has been linked to prenatal exposures. Some 20% of people do not appear to react consciously, whereas some 30% can have specific conscious reactions, like sensitivity to light, an EMF, especially LEDs and CFLs, or painful ears when using a mobile but not a corded phone at nonthermal levels.

About 3% of the population is moderately affected, and 1.6% is severely affected. An estimated 0.65% have restricted access to work unless accommodations are made.

Some genetic haplotypes are nearly ten times more common in people with EHS. Some viruses and high exposures from phone masts, smart meters, or Wi-Fi installations can also trigger hypersensitivity.

Physicians experienced in assessing people with EHS make a diagnosis through a full clinical history. Physical markers can also help, such as fMRI scans showing brain damage, pulsed ultrasound tomosphygmography scans showing changed cerebral blood perfusion and a few individualised but common markers, such as reduced melatonin and increased histamine, indicating oxidative stress, chronic inflammation and mitochondrial dysfunction.

Solving the challenges of EHS

The first need is a greater awareness of electromagnetic hypersensitivity. Both ICNIRP and ICBE-EMF found that some people, but not all, are particularly vulnerable to EHS symptoms. The Scientific Consensus International Report on EHS by 32 worldwide experts confirmed that EHS is a 'distinct neuropathological disorder'. It also stated that 'there is no proof that EHS symptoms or EHS itself are caused by psychosomatic or nocebo effects', contradicting the WHO's arbitrary decision in 2004 to conflate physical EHS with a different, psychological condition. By averaging test results without individual positive reactions, those supporting the wireless industry deny the existence of EHS, still clinging to Schwan's invalidated myth of 1953 that the only adverse effects of RFR are thermal, through heating the body one degree averaged over six or 30 minutes. In fact, EHS was first described in 1746 and established in 1932, and the symptoms, first recorded in 1733, can occur in children and unaware adults without prior psychological conditioning.

Secondly, the equality rights of EHS people to a safe environment for living and working need further protection. Some people badly affected by EHS are forced to live in forests or wildernesses if they can find areas free of RFR or forced to stop working and visiting towns, family, and friends. Since 2001, some courts worldwide have required the removal of smart meters and masts and specified schools free of Wi-Fi and mobiles for children with EHS.

Thirdly, nonthermal limits are needed. Some countries still use ICNIRP's heating-only limits, which do not protect against long-term non-thermal effects like EHS and cancer. Thus, under heating limits, eight case studies in Sweden showed that some, but not all, people suffered EHS symptoms within days from 5G masts activated near their homes or workplaces. The symptoms stopped when they moved to areas with less RFR. Protective non-thermal international limits like Bioinitiative 2012, EUROPAEM 2016 or IGNIR are needed. These nonthermal public limits should be below the RFR 'No Observable Adverse Effect Level' (NOAEL) of ~0.05 Volts per metre (V/m).

Fourthly, RFR needs an updated cancer classification. At present, both EMF and RFR are 2B possible carcinogens. Leading experts state that new evidence requires RFR to be reclassified as a class 1 known carcinogen. Indeed, since the 1990s, insurers have refused underwriting except as high risk like other cancer agents such as asbestos. RFR replacements could include infrared and Li-Fi technology if proved safe.

Above all, medical training and public health regulation need greater awareness of manmade environmental RFR and EMFs. These affect every aspect of human life, especially for those with electromagnetic hypersensitivity.

Contributor Details

Stakeholder Details

- Article Categories
- Health

- Article Tags
- Chemistry
- Energy
- Health
- Technological Innovations

- Publication Tags
- OAG 045 - January 2025

- Stakeholder Tags
- SH - Electrosensitivity UK