

Skittenstrøm

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Denne versjon: v.1.2, 20.01.2021

Definisjon – hva er skittenstrøm?

«We have come to call these high frequency transients, “dirty power”. “Dirty power” is also referred to as “transients”, “noise” or “stray voltage” and similar terms. **Clean power is when the electricity we use is solely in the form of a 60 Hz sinusoidal voltage and current without high frequency components. Dirty power refers to high frequency (>10 KHz) components riding on this sinusoidal wave.** Dirty power is a component of the 60 Hz power to which, in our modern electrified world, we are all exposed, in varying degrees. »

(Lloyd Morgan <https://www.stetzerelectric.com/wp-content/uploads/Morgan-blood-glucose-correlation.pdf>)

Søketermer

Dirty electricity, dirty power, transients, noise, stray voltage, incoherent magnetic fields, ground currents

Studier og metastudier (reviews)

Khaki-Khatibi, F., Nourazarian, A., Ahmadi, F., Farhoudi, M., Savadi-Oskouei, D., Pourostadi, M., & Asgharzadeh, M. (2019). Relationship between the use of electronic devices and susceptibility to multiple sclerosis. *Cognitive neurodynamics*, 13(3), 287–292.
<https://doi.org/10.1007/s11571-019-09524-1>
<https://pubmed.ncbi.nlm.nih.gov/31168332/>

Abstract

Multiple sclerosis (MS) is an autoimmune condition influenced by both genetic and environmental factors. Dirty electricity generated by electronic equipment is one of the environmental factors that may directly or indirectly impact MS susceptibility. The current Study aimed to evaluate the relationship between the usage time of electronic equipment and susceptibility to MS in North-West Iranian people. This approach was carried out upon 471 MS-diagnosed patients and 453 healthy participants as control group in East Province of Azerbaijan. By utilizing structured questionnaires, the information of all participants about usage status of some electronic devices was obtained. Data were analyzed by IBM SPSS Statistics version 18.0 and the quantitative variables were analyzed by Chi Square and Independent sample *t* tests. *P* values below or equal to 0.05 were considered as significant. Among the evaluated items in this approach, the utilization of cell phones and satellite

television dishes were significantly higher in MS patients ($p < 0.001$, $p = 0.07$). Furthermore, a correlation was observed between sleeping with cell phone and/or laptop under the pillow ($p = 0.011$) and MS disease; however, there was no significant differences between MS patients and controls in computer using and television watching. Our study reinforces the concept that the utilization of some electronic devices and the continuous exposure to dirty electricity would increase the risk of MS disease thereupon by enhancing the cognizance of adverse effects of dirty electricity and reducing the time spent over electronic devices during adolescence and adulthood the occurrence probability of MS could be declined.

Buesink, Frits & Vout-Ardatjew, Robert & Leferink, Frank. (2018). Observation of Abnormal Behavior of Cows Exposed to Electromagnetic Fields.

Published in: 2018 International Symposium on Electromagnetic Compatibility (EMC EUROPE), Amsterdam. IEEE, 2018: 918-921, ISBN 9781467396998

Abstract

Complaints on sensitivity to electromagnetic field levels far below the established exposure limits are unremitting. Although the symptoms are real, a clear causal link to EM-fields has not been established. Our coincidental observation of cows being startled by low amplitude high frequency transient electric fields generated by a new photo-voltaic installation may change this situation.

Havas M. (2008). Dirty electricity elevates blood sugar among electrically sensitive diabetics and may explain brittle diabetes. *Electromagnetic biology and medicine*, 27(2), 135–146.

<https://doi.org/10.1080/15368370802072075>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2557071/>

Abstract

Transient electromagnetic fields (dirty electricity), in the kilohertz range on electrical wiring, may be contributing to elevated blood sugar levels among diabetics and prediabetics. By closely following plasma glucose levels in four Type 1 and Type 2 diabetics, we find that they responded directly to the amount of dirty electricity in their environment. In an electromagnetically clean environment, Type 1 diabetics require less insulin and Type 2 diabetics have lower levels of plasma glucose. Dirty electricity, generated by electronic equipment and wireless devices, is ubiquitous in the environment. Exercise on a treadmill, which produces dirty electricity, increases plasma glucose. These findings may explain why brittle diabetics have difficulty regulating blood sugar. Based on estimates of people who suffer from symptoms of electrical hypersensitivity (3–35%), as many as 5–60 million diabetics worldwide may be affected. Exposure to electromagnetic pollution in its various forms may account for higher plasma glucose levels and may contribute to the misdiagnosis of diabetes. Reducing exposure to electromagnetic pollution by avoidance or with specially designed GS filters may enable some diabetics to better regulate their blood sugar with less medication and borderline or pre-diabetics to remain non diabetic longer.

Havas, M., & Olstad, A. (2008). Power quality affects teacher wellbeing and student behavior in three Minnesota Schools. *The Science of the total environment*, 402(2-3), 157–162.
<https://doi.org/10.1016/j.scitotenv.2008.04.046>
<https://pubmed.ncbi.nlm.nih.gov/18556048/>

Abstract

Background: Poor power quality (dirty electricity) is ubiquitous especially in schools with fluorescent lights and computers. Previous studies have shown a relationship between power quality and student behavior/teacher health.

Objectives: The purpose of this study is to determine the ability of power line filters to reduce dirty electricity in a school environment and to document changes in health and behavior among teachers and students.

Method: We installed Graham Stetzer filters and dummy filters and measured power quality in three Minnesota Schools. Teachers completed a daily questionnaire regarding their health and the behavior of their students for an 8-week period. Teachers were unaware of which filters were installed at any one time (single blind study).

Results: Dirty electricity was reduced by more than 90% in the three schools and during this period teacher health improved as did student behavior in the middle/elementary schools. Headaches, general weakness, dry eyes/mouth, facial flushing, asthma, skin irritations, overall mood including depression and anxiety improved significantly among staff. Of the 44 teachers who participated 64% were better, 30% were worse, and 6% did not change. Behavior of high school students did not improve but elementary/middle school students were more active in class; more responsive, more focused; had fewer health complaints; and had a better overall learning experience.

Conclusions: Dirty electricity in schools may be adversely affecting wellbeing of teachers and behavior of their students, especially younger students in middle and elementary school. Power line filters improve power quality and may also protect those who are sensitive to this energy. Work on electric and magnetic field metrics with and without Stetzer filters urgently needs to be carried out to determine just what characteristics of the dirty electricity may be interacting with the people.

Havas M. (2006). Electromagnetic hypersensitivity: biological effects of dirty electricity with emphasis on diabetes and multiple sclerosis. *Electromagnetic biology and medicine*, 25(4), 259–268.
<https://doi.org/10.1080/15368370601044192>
<https://pubmed.ncbi.nlm.nih.gov/17178585/>

Abstract

Dirty electricity is a ubiquitous pollutant. It flows along wires and radiates from them and involves both extremely low frequency electromagnetic fields and radio frequency radiation. Until recently, dirty electricity has been largely ignored by the scientific community. Recent inventions of metering and filter equipment provide scientists with the tools to measure and reduce dirty electricity on electrical wires. Several case studies and anecdotal reports are presented. Graham/Stetzer (GS) filters

have been installed in schools with sick building syndrome and both staff and students reported improved health and more energy. The number of students needing inhalers for asthma was reduced in one school and student behavior associated with ADD/ADHD improved in another school. Blood sugar levels for some diabetics respond to the amount of dirty electricity in their environment. Type 1 diabetics require less insulin and Type 2 diabetics have lower blood sugar levels in an electromagnetically clean environment. Individuals diagnosed with multiple sclerosis have better balance and fewer tremors. Those requiring a cane walked unassisted within a few days to weeks after GS filters were installed in their home. Several disorders, including asthma, ADD/ADHD, diabetes, multiple sclerosis, chronic fatigue, fibromyalgia, are increasing at an alarming rate, as is electromagnetic pollution in the form of dirty electricity, ground current, and radio frequency radiation from wireless devices. The connection between electromagnetic pollution and these disorders needs to be investigated and the percentage of people sensitive to this form of energy needs to be determined.

Havas, M., & Colling, D. (2011). Wind Turbines Make Waves: Why Some Residents Near Wind Turbines Become Ill. *Bulletin of Science, Technology & Society*, 31(5), 414–426. <https://doi.org/10.1177/0270467611417852>

<https://journals.sagepub.com/doi/10.1177/0270467611417852>

Kopi av fulltekst er lagt ut her:

<https://www.stetzerelectric.com/wp-content/uploads/Havas-Colling-wind-article.pdf>

Abstract

People who live near wind turbines complain of symptoms that include some combination of the following: difficulty sleeping, fatigue, depression, irritability, aggressiveness, cognitive dysfunction, chest pain/pressure, headaches, joint pain, skin irritations, nausea, dizziness, tinnitus, and stress. These symptoms have been attributed to the pressure (sound) waves that wind turbines generate in the form of noise and infrasound. However, wind turbines also generate electromagnetic waves in the form of poor power quality (dirty electricity) and ground current, and these can adversely affect those who are electrically hypersensitive. Indeed, the symptoms mentioned above are consistent with electrohypersensitivity. Sensitivity to both sound and electromagnetic waves differs among individuals and may explain why not everyone in the same home experiences similar effects. Ways to mitigate the adverse health effects of wind turbines are presented.

Milham, S., & Stetzer, D. (2018). The electronics in fluorescent bulbs and light emitting diodes (LED), rather than ultraviolet radiation, cause increased malignant melanoma incidence in indoor office workers and tanning bed users. *Medical hypotheses*, 116, 33–39.

<https://doi.org/10.1016/j.mehy.2018.04.013>

<https://pubmed.ncbi.nlm.nih.gov/29857905/>

Abstract

The epidemiology of cutaneous malignant melanoma (CMM) has a number of facets that do not fit with sunlight and ultraviolet light as the primary etiologic agents.

Indoor workers have higher incidence and mortality rates of CMM than outdoor workers; CMM occurs in body locations never exposed to sunlight; CMM incidence is increasing in spite of use of UV blocking agents and small changes in solar radiation. Installation of two new fluorescent lights in the milking parlor holding area of a Minnesota dairy farm in 2015 caused an immediate drop in milk production. This led to measurement of body amperage in humans exposed to modern non-incandescent lighting. People exposed to old and new fluorescent lights, light emitting diodes (LED) and compact fluorescent lights (CFL) had body amperage levels above those considered carcinogenic. We hypothesize that modern electric lighting is a significant health hazard, a carcinogen, and is causing increasing CMM incidence in indoor office workers and tanning bed users. These lights generate dirty electricity (high frequency voltage transients), radio frequency (RF) radiation, and increase body amperage, all of which have been shown to be carcinogenic. This could explain the failure of ultraviolet blockers to stem the malignant melanoma pandemic. Tanning beds and non-incandescent lighting could be made safe by incorporating a grounded Faraday cage which allows passage of ultraviolet and visible light frequencies and blocks other frequencies. Modern electric lighting should be fabricated to be electrically clean.

Milham S. (2014). Evidence that dirty electricity is causing the worldwide epidemics of obesity and diabetes. *Electromagnetic biology and medicine*, 33(1), 75–78.

<https://doi.org/10.3109/15368378.2013.783853>

<https://pubmed.ncbi.nlm.nih.gov/23781992/>

Referansene: <https://www.tandfonline.com/doi/ref/10.3109/15368378.2013.783853?scroll=top>

Abstract

The epidemics of obesity and diabetes most apparent in recent years had their origins with Thomas Edison's development of distributed electricity in New York City in 1882. His original direct current (DC) generators suffered serious commutator brush arcing which is a major source of high-frequency voltage transients (dirty electricity). From the onset of the electrical grid, electrified populations have been exposed to dirty electricity. Diesel generator sets are a major source of dirty electricity today and are used almost universally to electrify small islands and places unreachable by the conventional electric grid. This accounts for the fact that diabetes prevalence, fasting plasma glucose and obesity are highest on small islands and other places electrified by generator sets and lowest in places with low levels of electrification like sub-Saharan Africa and east and Southeast Asia.

Milham, S., & Stetzer, D. (2013). Dirty electricity, chronic stress, neurotransmitters and disease. *Electromagnetic biology and medicine*, 32(4), 500–507.

<https://doi.org/10.3109/15368378.2012.743909>

<https://pubmed.ncbi.nlm.nih.gov/23323864/>

Abstract

Dirty electricity, also called electrical pollution, is high-frequency voltage transients riding along the 50 or 60 Hz electricity provided by the electric utilities. It is generated

by arcing, by sparking and by any device that interrupts current flow, especially switching power supplies. It has been associated with cancer, diabetes and attention deficit hyperactivity disorder in humans. Epidemiological evidence also links dirty electricity to most of the diseases of civilization including cancer, cardiovascular disease, diabetes and suicide, beginning at the turn of the twentieth century. The dirty electricity level in a public library was reduced from over 10 000 Graham/Stetzer (G/S) units to below 50 G/S units by installing plug-in capacitive filters. Before cleanup, the urinary dopamine level of only one of seven volunteers was within normal levels, while four of seven phenylethylamine levels were normal. After an initial decline, over the next 18 weeks the dopamine levels gradually increased to an average of over 215 µg/g creatinine, which is well above 170 µg/g creatinine, the high normal level for the lab. Average phenylethylamine levels also rose gradually to slightly above 70 µg/g creatinine, the high normal level for the lab. Neurotransmitters may be biomarkers for dirty electricity and other electromagnetic field exposures. We believe that dirty electricity is a chronic stressor of electrified populations and is responsible for many of their disease patterns.

Milham, S., & Morgan, L. L. (2008). A new electromagnetic exposure metric: high frequency voltage transients associated with increased cancer incidence in teachers in a California school. *American journal of industrial medicine*, 51(8), 579–586.

<https://doi.org/10.1002/ajim.20598>--

<https://pubmed.ncbi.nlm.nih.gov/18512243/>

Fulltekst:

<http://www.sammilham.com/La%20Quinta%20Middle%20school%20teachers'%20cancers.pdf>

Abstract

Background: In 2003 the teachers at La Quinta, California middle school complained that they had more cancers than would be expected. A consultant for the school district denied that there was a problem.

Objectives: To investigate the cancer incidence in the teachers, and its cause.

Method: We conducted a retrospective study of cancer incidence in the teachers' cohort in relationship to the school's electrical environment.

Results: Sixteen school teachers in a cohort of 137 teachers hired in 1988 through 2005 were diagnosed with 18 cancers. The observed to expected (O/E) risk ratio for all cancers was 2.78 (P = 0.000098), while the O/E risk ratio for malignant melanoma was 9.8 (P = 0.0008). Thyroid cancer had a risk ratio of 13.3 (P = 0.0098), and uterine cancer had a risk ratio of 9.2 (P = 0.019). Sixty Hertz magnetic fields showed no association with cancer incidence. A new exposure metric, high frequency voltage transients, did show a positive correlation to cancer incidence. A cohort cancer incidence analysis of the teacher population showed a positive trend (P = 7.1 x 10⁻¹⁰) of increasing cancer risk with increasing cumulative exposure to high frequency voltage transients on the classroom's electrical wiring measured with a Graham/Stetzer (G/S) meter. The attributable risk of cancer associated with this

exposure was 64%. A single year of employment at this school increased a teacher's cancer risk by 21%.

Conclusion: The cancer incidence in the teachers at this school is unusually high and is strongly associated with high frequency voltage transients, which may be a universal carcinogen, similar to ionizing radiation.

Wertheimer, N., Savitz, D. A., & Leeper, E. (1995). Childhood cancer in relation to indicators of magnetic fields from ground current sources. *Bioelectromagnetics*, 16(2), 86–96.
<https://doi.org/10.1002/bem.2250160204>
<https://pubmed.ncbi.nlm.nih.gov/7612030/>

Abstract

This study examines childhood cancer risk in relation to certain factors likely to indicate magnetic field exposure from ground currents in the home. Substantial ground currents are most often found in homes having conductive plumbing, in which an uninterrupted metallic path in the water pipes and water main connects the grounding systems of neighboring houses. Information on plumbing conductivity was obtained from water suppliers for the homes of 347 cases and 277 controls identified in an earlier study of magnetic field exposure and childhood cancer in the Denver area. An increased cancer risk was observed for children in homes with conductive plumbing: The matched odds ratio was 1.72 (1.03-2.88) and increased to 3.00 (1.33-6.76) when analysis was limited to cases and controls who were residentially stable from the reference date to the study date. A measurement metric likely to indicate active ground currents (measurements having above-median intensity and a nonvertical orientation of < 55 degrees from the horizontal) was identified. In contrast to measured field intensity alone, for which only modest associations with cancer have been reported, this metric shows a high and significant cancer risk [matched O.R. = 4.0 (1.6-10.0)] consistent over a range of intensity and angle cutpoints. Such elevated nonvertical fields were also associated with cancer in an independent data set, which was gathered to study adult nonlymphocytic leukemia in the Seattle area. The associations of cancer with conductive plumbing and with this exposure metric both suggest that cancer risk is increased among persons with elevated magnetic field exposure from residential ground currents.

Kavet, R., & Zaffanella, L. E. (2002). Contact voltage measured in residences: implications to the association between magnetic fields and childhood leukemia. *Bioelectromagnetics*, 23(6), 464–474. <https://doi.org/10.1002/bem.10038>
<https://pubmed.ncbi.nlm.nih.gov/12210565/>

Abstract

We measured magnetic fields and two sources of contact current in 36 homes in Pittsfield, MA. The first source, V(P-W), is the voltage due to current in the grounding wire, which extends from the service panel neutral to the water service line. This voltage can cause contact current to flow upon simultaneous contact with a metallic part of the water system, such as the faucet, and the frame of an appliance, which is connected to the panel neutral through the equipment-grounding conductor. The

second is V(W-E), the voltage between the water pipe and earth, attributable to ground currents in the water system and magnetic induction from nearby power lines. In homes with conductive water systems and drains, V(W-E) can produce a voltage between the faucet and drain, which may produce contact current into an individual contacting the faucet while immersed in a bathtub. V(P-W) was not strongly correlated to the magnetic field (both log transformed) ($r = 0.28$; $P < 0.1$). On the other hand, V(W-E) was correlated to the residential magnetic field (both log transformed) ($r = 0.54$; $P < 0.001$), with the highest voltages occurring in homes near high voltage transmission lines, most likely due to magnetic induction on the grounding system. This correlation, combined with both frequent exposure opportunity for bathing children and substantial dose to bone marrow resulting from contact, lead us to suggest that contact current due to V(W-E) could explain the association between high residential magnetic fields and childhood leukemia.

Wertheimer, N., & Leeper, E. (1979). Electrical wiring configurations and childhood cancer. *American journal of epidemiology*, 109(3), 273–284.

<https://doi.org/10.1093/oxfordjournals.aje.a112681>

<https://pubmed.ncbi.nlm.nih.gov/453167/>

Abstract

An excess of electrical wiring configurations suggestive of high current-flow was noted in Colorado in 1976--1977 near the homes of children who developed cancer, as compared to the homes of control children. The finding was strongest for children who had spent their entire lives at the same address, and it appeared to be dose-related. It did not seem to be an artifact of neighborhood, street congestion, social class, or family structure. The reason for the correlation is uncertain; possible effects of current in the water pipes or of AC magnetic fields are suggested.

Ozen, S.. (2008). Low-frequency transient electric and magnetic fields coupling to child body.

Radiation protection dosimetry. 128. 62-7. 10.1093/rpd/ncm315.

https://www.researchgate.net/publication/6306243_Low-frequency_transient_electric_and_magnetic_fields_coupling_to_child_body

Fulltekst:

<http://docs.stetzerelectric.com/Ozen-Radiation-Protection-Dosimetry-2008.pdf>

Abstract

Much of the research related to residential electric and magnetic field exposure focuses on cancer risk for children. But until now only little knowledge about coupling of external transient electric and magnetic fields with the child's body at low frequency transients existed. In this study, current densities, in the frequency range from 50 Hz up to 100 kHz, induced by external electric and magnetic fields to child and adult human body, were investigated, as in residential areas, electric and magnetic fields become denser in this frequency band. For the calculations of induced fields and current density, the ellipsoidal body models are used. Current

density induced by the external magnetic field (1 mT) and external electric field (1 V/m) is estimated. The results of this study show that the transient electric and magnetic fields would induce higher current density in the child body than power frequency fields with similar field strength.

Kommentarer i fagtidsskrifter

Milham S. (2014). Response to "Refutation of dirty electricity hypothesis in obesity: epistemological arguments and trans-disciplinary study using an instrumental variable" by Frank de Vocht and Igor Burstyn. *Electromagnetic biology and medicine*, 33(1), 2.
<https://doi.org/10.3109/15368378.2013.855587>

Full tekst: <https://www.tandfonline.com/doi/pdf/10.3109/15368378.2013.855587>

Milham S. (2011). Dirty electricity, cellular telephone base stations and neoplasia. *The Science of the total environment*, 412-413, 390–391. <https://doi.org/10.1016/j.scitotenv.2011.09.002>
<https://pubmed.ncbi.nlm.nih.gov/22030248/>

Milham S. (2010). Amyotrophic lateral sclerosis (Lou Gehrig's disease) is caused by electric currents applied to or induced in the body: it is an iatrogenic disease of athletes caused by use of electrotherapy devices. *Medical hypotheses*, 74(6), 1086–1087.
<https://doi.org/10.1016/j.mehy.2010.01.033>
<https://pubmed.ncbi.nlm.nih.gov/20189317/>

Fulltekst: <https://www.stetzerelectric.com/wp-content/uploads/Milham-ALS-Paper-2010.pdf>

Milham S. (2011). Attention deficit hyperactivity disorder and dirty electricity. *Journal of developmental and behavioral pediatrics : JDBP*, 32(8), 634.
<https://doi.org/10.1097/DBP.0b013e31822f8da7>
<https://pubmed.ncbi.nlm.nih.gov/21904211/>

Se også:

https://journals.lww.com/jrnldb/Citation/2011/10000/Attention_Deficit_Hyperactivity_Disorder_and_Dirty.14.aspx

Andre slags publikasjoner

Milham, S. (2012). *Dirty Electricity: Electrification and the Diseases of Civilization*. Bloomington: iUniverse. (Bok).
<https://www.amazon.com/Dirty-Electricity-Electrification-Diseases-Civilization/dp/193890818X>

Havas, Magda & Stetzer, David. (2004). Dirty electricity and electrical hypersensitivity: Five case studies. World Health Organization Workshop on Electrical Hypersensitivity, 25-26 October, 2004, Prague, Czech Republic

https://www.researchgate.net/publication/228978746_Dirty_electricity_and_electrical_hypersensitivity_Five_case_studies

Havas, M. (2006) "[Dirty Electricity: An invisible pollutant in schools](#)" Ontario Secondary School Teachers' Federation

<http://docs.stetzerelectric.com/Havas-Dirty-Electricity-Schools-2006.pdf>

Luchterhand, K. (2003). "['Dirty' electricity causes illness in Mindoro school staff](#)" (2003)

<http://docs.stetzerelectric.com/Melrose-Chronicle-dirty-electricity.pdf>

Personlige erfaringer (blogger, artikler o.l.)

Daniel Rose: "[Desert Rose and the Story of Stray Currents](#)" (Truthout, July 14 2014)

Gary F Smith: "[Stray Voltage - No You are not Crazy](#)" (Mike Holt, 2003)

["Is dirty power killing us?"](#) (Mothers Against Wind Turbines, April 24 2018)

Relatert

Alle studier som finner skadevirkninger av både høyfrekvente og lavfrekvente elektromagnetiske felt er relevante for dette temaet. En kildesamling over forskning og advarsler fra fagfeltet finnes her:

<https://www.folkets-stralevern.no/wp-content/pdf/Kildesamling-2020-10-24.pdf>

Panagopoulos D. J. (2019). Comparing DNA damage induced by mobile telephony and other types of man-made electromagnetic fields. *Mutation research*, 781, 53–62.

<https://doi.org/10.1016/j.mrrev.2019.03.003>

<https://pubmed.ncbi.nlm.nih.gov/31416578/>

Abstract

The number of studies showing adverse effects on living organisms induced by different types of man-made Electromagnetic Fields (EMFs) has increased tremendously. Hundreds of peer reviewed published studies show a variety of effects, the most important being DNA damage which is linked to cancer, neurodegenerative diseases, reproductive declines etc. Those studies that are far more effective in showing effects employ real-life Mobile Telephony (MT) exposures emitted by commercially available mobile phones. The present review - of results published by my group from 2006 until 2016 - compares DNA fragmentation induced by six different EMFs on the same biological system - the oogenesis of *Drosophila melanogaster* - under identical conditions and procedures. Such a direct comparison between different EMFs - especially those employed in daily life - on the same biological endpoint, is very useful for drawing conclusions on their bioactivity, and novel. It shows that real MT EMFs are far more damaging than 50 Hz alternating magnetic field (MF) - similar or much stronger to those of power lines - or a pulsed electric field (PEF) found before to increase fertility. The MT EMFs were significantly more bioactive even for much shorter exposure durations than the other EMFs. Moreover, they were more damaging than previously tested cytotoxic agents like

certain chemicals, starvation, dehydration. *Individual parameters of the real MT EMFs like intensity, frequency, exposure duration, polarization, pulsing, modulation, are discussed in terms of their role in bioactivity. The crucial parameter for the intense bioactivity seems to be the extreme variability of the polarized MT signals, mainly due to the large unpredictable intensity changes.*

(vår utheving i kursiv. Denne litteraturstudien av Dimitris J. Panagopolous (PHD biofysikk) gjennomgår studier som viser at ikke bare signalstyrken (effekten) alene, men også egenskaper og kompleksiteten ved pulsmoduleringen, er avgjørende for skadevirkninger av mobilstråling og andre typer menneskeskapte elektromagnetiske felt på DNA.)

Eksempler på et lite utvalg av andre studier som også har vært knyttet til tematikken i enkelte av de refererte (over) studiene om skittenstrøm:

Savitz, D. A., Checkoway, H., & Loomis, D. P. (1998). Magnetic field exposure and neurodegenerative disease mortality among electric utility workers. *Epidemiology (Cambridge, Mass.)*, 9(4), 398–404.

<https://pubmed.ncbi.nlm.nih.gov/9647903/>

Abstract

Several recent reports indicate that occupational exposure to electric and magnetic fields may be associated with increased risk of neurodegenerative diseases. To address that hypothesis, we analyzed data from a cohort study of electric utility workers. We examined exposure to magnetic fields, assessed as duration of work in exposed jobs and through an index of cumulative exposure based on magnetic field measurements, in relation to mortality from Alzheimer's disease, Parkinson's disease, and amyotrophic lateral sclerosis, considering both underlying and all mentioned causes of death. Adjusted mortality rate ratios based on Poisson regression models indicate no association between magnetic fields and Parkinson's disease and little support for an association with Alzheimer's disease mortality. Mortality from amyotrophic lateral sclerosis was positively associated with duration of work in exposed jobs [rate ratio = 2.0, 95% confidence interval (CI)= 0.7-6.0; and rate ratio = 3.1, 95% CI = 1.0-9.8, based on underlying cause for 5 - < 20 years and > or = 20 years vs < 5 years, respectively], as well as with cumulative magnetic field exposure with a > or = 20-year lag (rate ratio = 2.3, 95% CI = 0.8-6.6; and rate ratio = 3.0, 95% CI = 1.0-9.2, for exposure in the middle and upper intervals relative to the lowest interval, respectively).

Milham S. (2010). Historical evidence that electrification caused the 20th century epidemic of "diseases of civilization". *Medical hypotheses*, 74(2), 337–345.

<https://doi.org/10.1016/j.mehy.2009.08.032>

<https://pubmed.ncbi.nlm.nih.gov/19748187/>

Fulltekst: <http://www.sammilham.com/historical%20evidence.pdf>

Li, D., Ferber, J., Odouli, R. *et al.* (2012). A Prospective Study of *In-utero* Exposure to Magnetic Fields and the Risk of Childhood Obesity. *Sci Rep* 2, 540. <https://doi.org/10.1038/srep00540>
<https://www.nature.com/articles/srep00540>

Abstract

We conducted a prospective study to examine whether *in-utero* exposure to magnetic fields (MFs) increases the risk of childhood obesity. Participating women carried a meter measuring MF levels during pregnancy and 733 of their children were followed up to 13 years to collect clinically recorded information on growth patterns with 33 weight measurements per child on average. Prenatal exposure to high MF level was associated with increased risk of being obese in offspring than those with lower MF level (odds ratio = 1.69, 95% confidence interval: 1.01–2.84). The association demonstrated a dose-response relationship and was stronger (more than 2.3 fold increased risk) among children who were followed up to the end of the study. The association existed only for persistent obesity, but not for transitory (unlikely) obesity. Maternal exposure to high MF during pregnancy may be a new and previously unknown factor contributing to the world-wide epidemic of childhood obesity/overweight.

Li, D. K., Chen, H., & Odouli, R. (2011). Maternal exposure to magnetic fields during pregnancy in relation to the risk of asthma in offspring. *Archives of pediatrics & adolescent medicine*, 165(10), 945–950. <https://doi.org/10.1001/archpediatrics.2011.135>

<https://pubmed.ncbi.nlm.nih.gov/21810627/>

Abstract

Participants: Pregnant Kaiser Permanente Northern California members in the San Francisco area.

Main outcome measures: Asthma was clinically diagnosed among 626 children who were followed up for as long as 13 years. All participants carried a meter to measure their MF levels during pregnancy.

Results: After adjustment for potential confounders, a statistically significant linear dose-response relationship was observed between increasing maternal median daily MF exposure level in pregnancy and an increased risk of asthma in offspring: every 1-mG increase of maternal MF level during pregnancy was associated with a 15% increased rate of asthma in offspring (adjusted hazard ratio [aHR], 1.15; 95% confidence interval [CI], 1.04-1.27). Using the categorical MF level, the results showed a similar dose-response relationship: compared with the children whose mothers had a low MF level (median 24-hour MF level, ≤ 0.3 mG) during pregnancy, children whose mothers had a high MF level (> 2.0 mG) had more than a 3.5-fold increased rate of asthma (aHR, 3.52; 95% CI, 1.68-7.35), while children whose mothers had a medium MF level (> 0.3 - 2.0 mG) had a 74% increased rate of asthma (aHR, 1.74; 95% CI, 0.93-3.25). A statistically significant synergistic interaction was observed between the MF effect and a maternal history of asthma and birth order (firstborn).

Conclusion: Our findings provide new epidemiological evidence that high maternal MF levels in pregnancy may increase the risk of asthma in offspring.

Davanipour, Z., Sobel, E., Bowman, J. D., Qian, Z., & Will, A. D. (1997). Amyotrophic lateral sclerosis and occupational exposure to electromagnetic fields. *Bioelectromagnetics*, 18(1), 28–35.

[https://doi.org/10.1002/\(sici\)1521-186x\(1997\)18:1<28::aid-bem6>3.0.co;2-7](https://doi.org/10.1002/(sici)1521-186x(1997)18:1<28::aid-bem6>3.0.co;2-7)
<https://pubmed.ncbi.nlm.nih.gov/9125230/>

Abstract

In an hypothesis-generating case-control study of amyotrophic lateral sclerosis, lifetime occupational histories were obtained. The patients (n = 28) were clinic based. The occupational exposure of interest in this report is electromagnetic fields (EMFs). This is the first and so far the only exposure analyzed in this study. Occupational exposure up to 2 years prior to estimated disease symptom onset was used for construction of exposure indices for cases. Controls (n = 32) were blood and nonblood relatives of cases. Occupational exposure for controls was through the same age as exposure for the corresponding cases. Twenty (71%) cases and 28 (88%) controls had at least 20 years of work experience covering the exposure period. The occupational history and task data were used to classify blindly each occupation for each subject as having high, medium/high, medium, medium/low, or low EMF exposure, based primarily on data from an earlier and unrelated study designed to obtain occupational EMF exposure information on workers in "electrical" and "nonelectrical" jobs. By using the length of time each subject spent in each occupation through the exposure period, two indices of exposure were constructed: total occupational exposure (E1) and average occupational exposure (E2). For cases and controls with at least 20 years of work experience, the odds ratio (OR) for exposure at the 75th percentile of the E1 case exposure data relative to minimum exposure was 7.5 (P < 0.02; 95% CI, 1.4-38.1) and the corresponding OR for E2 was 5.5 (P < 0.02; 95% CI, 1.3-22.5). For all cases and controls, the ORs were 2.5 (P < 0.1; 95% CI, 0.9-8.1) for E1 and 2.3 (P = 0.12; 95% CI, 0.8-6.6) for E2. This study should be considered an hypothesis-generating study. Larger studies, using incident cases and improved exposure assessment, should be undertaken.

Westman, J. A., Ferketich, A. K., Kauffman, R. M., MacEachern, S. N., Wilkins, J. R., 3rd, Wilcox, P. P., Pilarski, R. T., Nagy, R., Lemeshow, S., de la Chapelle, A., & Bloomfield, C. D. (2010). Low cancer incidence rates in Ohio Amish. *Cancer causes & control : CCC*, 21(1), 69–75.
<https://doi.org/10.1007/s10552-009-9435-7>
<https://pubmed.ncbi.nlm.nih.gov/19779840/>

Conclusion: Cancer incidence is low in the Ohio Amish. These data strongly support reduction of cancer incidence by tobacco abstinence but cannot be explained solely on this basis. Understanding these contributions may help to identify additional important factors to target to reduce cancer among the non-Amish.

Holder J, Warren AC. Prevalence of Alzheimer's disease and apolipoprotein E allele frequencies in the Old Order Amish. *J Neuropsychiatry Clin Neurosci*. 1998 Winter;10(1):100-2. doi: 10.1176/jnp.10.1.100. PMID: 9547474.
<https://pubmed.ncbi.nlm.nih.gov/9547474/>

Abstract

The authors examined the prevalence of Alzheimer's disease and apolipoprotein E allele frequencies in the Old Order Amish. A lower frequency of dementia in the Amish does not appear to be due to a reduced E4 frequency.

Appleman, R. D., & Gustafson, R. J. (1985). Source of stray voltage and effect on cow health and performance. *Journal of dairy science*, 68(6), 1554–1567. [https://doi.org/10.3168/jds.S0022-0302\(85\)80994-2](https://doi.org/10.3168/jds.S0022-0302(85)80994-2)
<https://pubmed.ncbi.nlm.nih.gov/3894447/>

Abstract

The slow spread of residential electrification in the US in the first half of the 20th century from urban to rural areas resulted by 1940 in two large populations; urban populations, with nearly complete electrification and rural populations exposed to varying levels of electrification depending on the progress of electrification in their state. It took until 1956 for US farms to reach urban and rural non-farm electrification levels. Both populations were covered by the US vital registration system. US vital statistics tabulations and census records for 1920-1960, and historical US vital statistics documents were examined. Residential electrification data was available in the US census of population for 1930, 1940 and 1950. Crude urban and rural death rates were calculated, and death rates by state were correlated with electrification rates by state for urban and rural areas for 1940 white resident deaths. Urban death rates were much higher than rural rates for cardiovascular diseases, malignant diseases, diabetes and suicide in 1940. Rural death rates were significantly correlated with level of residential electric service by state for most causes examined. I hypothesize that the 20th century epidemic of the so called diseases of civilization including cardiovascular disease, cancer and diabetes and suicide was caused by electrification not by lifestyle. A large proportion of these diseases may therefore be preventable.

Henke Drenkard, D. V., Gorewit, R. C., Scott, N. R., & Sagi, R. (1985). Milk production, health, behavior, and endocrine responses of cows exposed to electrical current during milking. *Journal of dairy science*, 68(10), 2694–2702. [https://doi.org/10.3168/jds.s0022-0302\(85\)81154-1](https://doi.org/10.3168/jds.s0022-0302(85)81154-1)
<https://pubmed.ncbi.nlm.nih.gov/4067038/>

Abstract

Six cows were exposed during milkings to electrical current to assess its effects on behavior, health, milking performance, and endocrine responses. Three treatments (0, 4, and 8 mA) were applied in a changeover design over three consecutive 1-wk periods. A cow received the same current treatment during 14 consecutive milkings, beginning with the evening milking (d 1) and ending with the morning milking (d 8). Treatments began 5 min before milking and continued until milking unit removal. Treatments consisted of 60 Hz square wave current of 5-s duration applied every 30 s from udder to hooves. Milk accumulation

curves provided information about milk yields, milking times, peak milk flow rates, and times of peak milk flow. Residual milk yields also were measured. Milk was analyzed for protein, fat, and somatic cells. Blood samples from 60 min before to 60 min after treatment were collected, and oxytocin, prolactin, and cortisol concentrations were measured. Behavioral responses to current decreased with time. Changes of milking performance and milk composition were not significant. Changes of milking related cortisol responses during 8-mA current stimulation were significant. Oxytocin release was delayed during 8-mA treatments. Current treatments did not affect prolactin.

Shigemitsu, T., Tsuchida, Y., Nishiyama, F., Matsumoto, G., Nakamura, H., & Shimizu, K. (1981). Temporal variation of the static electric field inside an animal cage. *Bioelectromagnetics*, 2(4), 391–402. <https://doi.org/10.1002/bem.2250020410>
<https://pubmed.ncbi.nlm.nih.gov/7326060/>

Abstract

The temporal variation of a static electric field inside an animal cage was investigated with a newly developed small, simple field meter. The field inside the cage was found to be highly dependent on the surface conductivity of the dielectric material. As the surface of the cage became dirty because of animal occupancy, the static electric field inside it became considerably smaller from the moment the field was turned on. Clean cages also modified the static electric field inside them, the field decaying from an initial to a much lower value over several hours. The mechanism of field attenuation for both cases is surface leakage. Surface leakage for a clean cage takes place much more slowly than for a dirty cage. This was confirmed by measuring DC insulation resistance. To examine this phenomenon further, the field in a metal cage with high electrical conductivity was measured. The static electric field inside the metal cage was also found to be reduced. An improved cage design that avoids these problems, is suggested for the study of the biologic effects of static electric fields.

Diverse

Noen samlinger av referanser:

Milhams hjemmeside: <http://www.sammilham.com/links.shtm>

Se også: <https://www.stetzerelectric.com/category/research/>

<https://www.electrosensitivity.co/dirtyelect--groundcurr..html>

Notater - ikke til direkte bruk

Dr de Vocht should remember: A New Electromagnetic Exposure Metric: High Frequency Voltage Transients Associated With Increased Cancer Incidence in Teachers in a California School by me and Lloyd Morgan, to which he devoted a review article. I cited two papers by D.K. Li who showed that fetal intrauterine exposure to power frequency magnetic fields was associated with asthma and obesity in the children. **In my experience, high magnetic fields are a surrogate for dirty electricity.** The cited Amish studies for a number of diseases are valid because they remove house wiring, shun electricity, and have minimal exposure to dirty electricity, explaining the very low incidence of cancer, cardiovascular diseases, diabetes and suicide in their population. The diabetes study by Havas was also peer reviewed

(Hentet fra Milham – kommentar:

<https://www.tandfonline.com/doi/pdf/10.3109/15368378.2013.855587>)

Transients:

Skittenstrøm består av transienter og omvendt. Det er flere studier i databasen til Achen emf-portal.org når man søker på *transients*.

Takahashi, K., Doge, F., & Yoshioka, M. (2005). Prolonged Ca²⁺ transients in ATP-stimulated endothelial cells exposed to 50 Hz electric fields. *Cell biology international*, 29(3), 237–243.
<https://doi.org/10.1016/j.cellbi.2004.12.009>

H. Lai & N.P. Singh (2005) Interaction of Microwaves and a Temporally Incoherent Magnetic Field on Single and Double DNA Strand Breaks in Rat Brain Cells, *Electromagnetic Biology and Medicine*, 24:1, 23-29, DOI: [10.1081/JBC-200055046](https://doi.org/10.1081/JBC-200055046)
<https://www.tandfonline.com/doi/abs/10.1081/JBC-200055046>

Johansen C. Exposure to electromagnetic fields and risk of central nervous system disease in utility workers. *Epidemiology*. 2000 Sep;11(5):539-43. doi: 10.1097/00001648-200009000-00009. PMID: 10955406.
<https://pubmed.ncbi.nlm.nih.gov/10955406/>

Abstract

Occupational exposure to electromagnetic fields has been associated with neurological diseases such as amyotrophic lateral sclerosis, senile dementia, Parkinson disease, and Alzheimer disease. I studied the incidence of central nervous system diseases in 30,631 persons employed in Danish utility companies between 1900 and 1993. I linked the cohort to the nationwide, population-based Danish National Register of Patients and compared the numbers of cases of these diseases observed between 1978 and 1993 with the corresponding rates in the general population. In addition I fit to the data on utility workers a multiplicative Poisson regression model in relation to estimated levels of exposure to 50-Hz electromagnetic fields. Overall, there was an increase in risk for senile dementia and motor neuron diseases combined. The incidences of Parkinson disease, Alzheimer disease, and other diseases of the central nervous system were essentially unrelated to exposure to electromagnetic fields. A decreased risk of epilepsy compared with the general population probably reflects a healthy worker effect; I observed an increased risk of epilepsy based on internal comparisons. The increased risk for senile dementia and motorneuron diseases may be associated with above-average levels of exposure to electromagnetic fields

Løst og fast, ikke sortert

einarflydal.com

<https://einarflydal.com/2019/08/06/domstoler-i-frankrike-krever-at-smartmalere-skal-fjernes-pa-grunn-av-helseplager-fra-skitten-strom/>

<https://einarflydal.com/2018/03/01/smartmalere-hjernevask-for-borettslag-og-sameier-fra-9-til-60-hz/>

<https://einarflydal.com/2017/10/30/ny-nve-beskjed-skift-ut-alle-malerne-og-sett-antennene-der-folk-vil/>

<https://einarflydal.com/2017/10/09/skitten-strom-gir-smartmalerne-overvåkingsmuligheter/>

Målerapport Sagadammen 26

<https://einarflydal.com/wp-content/uploads/2018/02/mc3a5lerapport-sagadammen-26.pdf>

Noen enkle forklaringer:

Steven Magee: Electrical Forensics

Trainor.no: <https://www.trainor.no/cms/Forum/Elektrisk-stoey/Overharmonisk>

Studiegjennomganger

1. Frank de Vocht and Robert G. Olsen Systematic Review of the Exposure Assessment and Epidemiology of High-Frequency Voltage Transients (2016)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4810027/>

Følgende enkeltstudier i gjennomgangen kom også høyt opp i Google søk (fant disse før jeg tittet på denne gjennomgangen):

- 32. Havas M, Stetzer D. Dirty electricity and electromagnetic hypersensitivity: five case studies. World Health Organization Workshop on Electrical Hypersensitivity, 2004 October 25-26. Prague: (2004). [Google Scholar]<http://emfandhealth.com/HavasStetzerWHODirtyElectricityStudies.pdf>
- 35. de Vocht F. "Dirty electricity": what, where, and should we care? J Expo Sci Environ Epidemiol (2010) 20:399–405. 10.1038/jes.2010.8 [PubMed] [CrossRef] [Google Scholar]
<https://www.nature.com/articles/jes20108>
- 44. Havas M, Olstad A. Power quality affects teacher wellbeing and student behavior in three Minnesota Schools. Sci Total Environ (2008) 402:157–62. 10.1016/j.scitotenv.2008.04.046 [PubMed] [CrossRef] [Google Scholar]
- 45. Milham S, Morgan LL. A new electromagnetic exposure metric: high frequency voltage transients associated with increased cancer incidence in teachers in a California School. Am J Ind Med (2008) 51:579–86. 10.1002/ajim.20598 [PubMed] [CrossRef] [Google Scholar]

- 49. Havas M. Electromagnetic hypersensitivity: biological effects of dirty electricity with emphasis on diabetes and multiple sclerosis. *Electromagn Biol Med* (2006) 25:259–68.10.1080/15368370601044192 [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- 51. Havas M, Colling D. Wind turbines make waves: why some residents near wind turbines become ill. *Bull Sci Technol Soc* (2011) 31:12.10.1177/0270467611417852 [[CrossRef](#)] [[Google Scholar](#)] <https://journals.sagepub.com/doi/10.1177/0270467611417852>
- 53. Pall ML. Electromagnetic fields act via activation of voltage-gated calcium channels to produce beneficial or adverse effects. *J Cell Mol Med* (2013) 17:958–65.10.1111/jcmm.12088 [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- 58. Havas M. Dirty electricity elevates blood sugar among electrically sensitive diabetics and may explain brittle diabetes. *Electromagn Biol Med* (2008) 27:135–46.10.1080/15368370802072075 [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- 77. Milham S, Morgan LL. Reply from authors. A new electromagnetic exposure metric: high frequency voltage transients associated with increased cancer incidence in teachers in California School. *Am J Ind Med* (2009) 52:352.10.1002/ajim.20684 [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]

Annet

- Dr. Riina Bray MD and David Fancy PhD: Clinical Practice Guidelines for EHS-Proceedings from a Symposium on the Impacts of Wireless Technology on Health (publisert på Environmental Health Clinic, Women's College Hospital, University of Toronto, Canada) <https://www.womenscollegehospital.ca/assets/pdf/environmental/Clinical%20Practice%20Guidelines%20for%20EHS%20and%20Symposium%20Proceedings%20-%20Final.pdf>
 - fra studiegjennomgang 1: referanse 58
 - kan være flere aktuelle studier, fra side 33 og utover
- Radiation Safety Institute of Canada – Some Facts About Dirty Electricity <https://emfguide.com/emf-health-studies/>
 - Fem av seks studier fra studiegjennomgang 1: referanse 44, 45, 51, 53, 58
 - Roy D. Jeffery, MD FCFP Adverse health effects of industrial wind turbines (2013) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653647/>
- DirtyElectricity.net (førsteintrykk: litt propaganda-preget) <https://www.dirtyelectricity.org/growing-health-concern>
Lenker til 11 kilder:
 - Fire studier fra studiegjennomgang 1: referanse 44, 49, 53, 77
 - Chaotic Electrical Energy – non-sinusoidal, or non-continuous waveforms. (i.e. modulated wave forms, pulsed frequencies, alternating current (AC) and electromagnetic interference (EMI) also referred to as dirty electricity. There is evidence that the innate immune system perceives non-sinusoidal waveforms as foreign invaders. Dr. Olle Johansson's section in the BioInitiative Report (4) points to the proliferation of mast cells triggered by modulated electromagnetic

- fields (EMF). The innate immune system then mounts an inflammatory response, which includes the release of cytokines and histamines.
- Carpenter DO, Sage C, Behari J, Xu, Lai H, Blank M, Johansson O, Grigoriev Y, Salford L, Carlberg et al CV, et al “BioInitiative 2012, A Rationale for Biologically-based Exposure Standards for Low-Intensity Electromagnetic Radiation”; <http://www.bioinitiative.org/table-of-contents/>
 - Glaser, ZR. “Bibliography of Reported Biological Phenomena (Effects) and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation”; Naval Medical Research Institute, Oct 1971; http://www.magdahavas.com/wordpress/wp-content/uploads/2010/06/Navy_Radiowave_Brief.pdf
 - Lear, R. “A New Era of Disease in America and what’s behind it.” ResearchGate, Aug 2017 https://www.researchgate.net/publication/319288113_A_New_Era_of_Chronic_Disease_in_America_and_what%27s_behind_it
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 - Pacher P, Beckman J, Liaudet L. Nitric oxide and peroxynitrite in health and disease. *Physiol Rev.* 2007 Jan; 87(1):315-424. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2248324/>
 - Lear, R. “Root Cause in the Dramatic Rise of Chronic Disease.” ResearchGate, Sept 2016 https://www.researchgate.net/publication/303673576_The_Root_Cause_in_the_dramatic_rise_of_Chronic_Disease
- Pluss denne enkeltstudien, googlet frem men ikke med i studiegjennomgangen(e) over:
 - Stephen J Genuis Fielding a current idea: exploring the public health impact of electromagnetic radiation (2007) <https://pubmed.ncbi.nlm.nih.gov/17572456/>