

**INDEPENDENT PEER-REVIEWED SCIENTIFIC STUDIES  
on Bio-effects from Electromagnetic Fields**

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## WILDLIFE

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
1.	Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation, Sci Total Environ. 2015 Jun 15;518-519:58-60. doi: 10.1016/j.scitotenv.2015.02.077. Epub 2015 Mar 4. Balmori A, (June 2015)	"Current evidence indicates that exposure at levels that are found in the environment (in urban areas and near base stations) may particularly alter the receptor organs to orient in the magnetic field of the earth. These results could have important implications for migratory birds and insects, especially in urban areas, but could also apply to birds and insects in natural and protected areas where there are powerful base station emitters of radiofrequencies. Therefore, more research on the effects of electromagnetic radiation in nature is needed to investigate this emerging threat."	<a href="https://pubmed.ncbi.nlm.nih.gov/25747364/">https://pubmed.ncbi.nlm.nih.gov/25747364/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
2.	Electromagnetic pollution from phone masts. Effects on wildlife, Pathophysiology. 2009 Mar 3. Balmori A, (March 2009)	"A review on the impact of radiofrequency radiation from wireless telecommunications on wildlife is presented. Electromagnetic radiation is a form of environmental pollution which may hurt wildlife. Phone masts located in their living areas are irradiating continuously some species that could suffer long-term effects, like reduction of their natural defenses, deterioration of their health, problems in reproduction and reduction of their useful territory through habitat deterioration. Electromagnetic radiation can exert an aversive behavioral response in rats, bats and birds such as sparrows. Therefore microwave and	<a href="https://pubmed.ncbi.nlm.nih.gov/19264463/">https://pubmed.ncbi.nlm.nih.gov/19264463/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>

## WILDLIFE

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		radiofrequency pollution constitutes a potential cause for the decline of animal populations and deterioration of health of plants living near phone masts. To measure these effects urgent specific studies are necessary."		
3.	Extremely Low Frequency Electromagnetic Fields impair the Cognitive and Motor Abilities of Honey Bees, Sci Rep. 2018 May 21;8(1):7932. doi: 10.1038/s41598-018-26185-y. Shepherd S et al, (May 2018)	"The results suggest that 50 Hz ELF EMFs emitted from powerlines may represent a prominent environmental stressor for honey bees, with the potential to impact on their cognitive and motor abilities, which could in turn reduce their ability to pollinate crops."	<a href="https://pubmed.ncbi.nlm.nih.gov/29785039/">https://pubmed.ncbi.nlm.nih.gov/29785039/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
4.	Exposure to cell phone radiations produces biochemical changes in worker honey bees, Toxicol Int. 2011 Jan;18(1):70-2. Kumar NR et al, (January 2011)	"The initial quiet period was characterized by rise in concentration of biomolecules including proteins, carbohydrates and lipids, perhaps due to stimulation of body mechanism to fight the stressful condition created by the radiations. At later stages of exposure, there was a slight decline in the concentration of biomolecules probably because the body had adapted to the stimulus."	<a href="https://pubmed.ncbi.nlm.nih.gov/21430927/">https://pubmed.ncbi.nlm.nih.gov/21430927/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>

## REPRODUCTIVE/PREGNANCY EFFECTS

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
5.	Exposure to Electromagnetic Fields of High Voltage Overhead Power Lines and Female Infertility. epidem. By: Esmailzadeh S, Delavar MA, Aleyassin A, Gholamian SA, Ahmadi A. Published in: Int J Occup Environ Med 2019; 10 (1): 11-16	“Women living within 500 m of a power line (OR 4.44, CI 2.77 to 7.11) carried a significantly higher risk of infertility compared to women living more than 1000 m away.”	<a href="https://pubmed.ncbi.nlm.nih.gov/30685773/">https://pubmed.ncbi.nlm.nih.gov/30685773/</a>	<a href="https://www.emf-portal.org/en/article/37209">https://www.emf-portal.org/en/article/37209</a>
6.	Prenatal exposure to extremely low frequency magnetic field and its impact on fetal growth. epidem. By: Ren Y, Chen J, Miao M, Li DK, Liang H, Wang Z, Yang F, Sun X, Yuan W	“Compared with girls with lower prenatal exposure to extremely low frequency magnetic fields (reference groups), girls with higher exposure (groups 2, 4 and 6) had a lower birth weight, thinner skinfold of triceps, abdomen and back, and smaller circumference of head, upper arm and abdomen. The differences were statistically significant for birth weight and most other growth measurements. ... The authors concluded that prenatal exposure to higher extremely low frequency magnetic field levels was associated with decreased fetal growth in girls, but not in boys.”	<a href="https://pubmed.ncbi.nlm.nih.gov/30635061/">https://pubmed.ncbi.nlm.nih.gov/30635061/</a>	<a href="https://www.emf-portal.org/en/article/37081">https://www.emf-portal.org/en/article/37081</a>
7.	Exposure to Magnetic Field Non-Ionizing Radiation and the Risk of Miscarriage: A Prospective Cohort Study. epidem. By: Li DK, Chen H, Ferber JR, Odouli R, Quesenberry C. Published in: Sci Rep 2017; 7 (1): 17541	“The authors conclude that the study provides fresh evidence, directly from a human population, that exposure to magnetic fields could have adverse biological impacts on human health.”	<a href="https://www.nature.com/articles/s41598-017-16623-8.pdf">https://www.nature.com/articles/s41598-017-16623-8.pdf</a>	<a href="https://www.emf-portal.org/en/article/34183">https://www.emf-portal.org/en/article/34183</a>
8.	Preterm birth among women living within 600 meters of high voltage overhead Power Lines: a case-control study. epidem. By: Sadeghi T, Ahmadi A, Javadian M, Gholamian SA, Delavar MA, Esmailzadeh S, Ahmadi B, Hadighi MSH. Published in: Rom J Intern Med 2017; 55 (3): 145-150	“Increased risks for spontaneous preterm birth and birth defect were observed in women who were living in less than 600 meters from high voltage power lines compared to those living in farther distance.”	<a href="https://content.sciendo.com/view/journals/rjim/55/3/article-p145.xml">https://content.sciendo.com/view/journals/rjim/55/3/article-p145.xml</a>	<a href="https://www.emf-portal.org/en/article/31695">https://www.emf-portal.org/en/article/31695</a>

## REPRODUCTIVE/PREGNANCY EFFECTS

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
9.	Maternal residential proximity to sources of extremely low frequency electromagnetic fields and adverse birth outcomes in a UK cohort. epidem. By: de Vocht F, Hannam K, Baker P, Agius R. Published in: Bioelectromagnetics 2014; 35 (3): 201-209	“The authors concluded that living close (50m or less) to a residential source of extremely low frequency electromagnetic fields during pregnancy is associated with suboptimal growth in utero, with stronger effects in female than in males.”	<a href="https://pubmed.ncbi.nlm.nih.gov/24482293/">https://pubmed.ncbi.nlm.nih.gov/24482293/</a>	<a href="https://www.emf-portal.org/en/article/24214">https://www.emf-portal.org/en/article/24214</a>
10.	Exposure to extremely low frequency electromagnetic fields during pregnancy and the risk of spontaneous abortion: a case-control study. epidem. By: Shamsi Mahmoudabadi F, Ziaei S, Firoozabadi M, Kazemnejad A. Published in: J Res Health Sci 2013; 13 (2): 131-134	“A statistically significant association between the measured magnetic field strengths and the risk of spontaneous abortions (OR 1.85, CI 1.38-2.47) was observed.”	<a href="http://jrhs.umsha.ac.ir/index.php/JRHS/article/view/848/pdf">http://jrhs.umsha.ac.ir/index.php/JRHS/article/view/848/pdf</a>	<a href="https://www.emf-portal.org/en/article/23597">https://www.emf-portal.org/en/article/23597</a>
11.	Exposure to magnetic fields and the risk of poor sperm quality. epidem. By: Li DK, Yan B, Li Z, Gao E, Miao M, Gong D, Weng X, Ferber JR, Yuan W Published in: Reprod Toxicol 2010; 29 (1): 86-92	“The author concluded that some evidence was found that magnetic fields might have an adverse effect on sperm quality.”	<a href="https://pubmed.ncbi.nlm.nih.gov/19910156/">https://pubmed.ncbi.nlm.nih.gov/19910156/</a>	<a href="https://www.emf-portal.org/en/article/18151">https://www.emf-portal.org/en/article/18151</a>
12.	Risk of birth defects by parental occupational exposure to 50 Hz electromagnetic fields: a population based study. epidem. By: Blaasaas KG, Tynes T, Irgens A, Lie RT Published in: Occup Environ Med 2002; 59 (7): 92-97	“The study gives an indication of an association between selected disorders of the central nervous system and parental occupational exposure to 50 Hz magnetic fields.”	<a href="https://oem.bmj.com/content/oemed/59/2/92.full.pdf">https://oem.bmj.com/content/oemed/59/2/92.full.pdf</a>	<a href="https://www.emf-portal.org/en/article/8639">https://www.emf-portal.org/en/article/8639</a>
13.	A population-based prospective cohort study of personal exposure to magnetic fields during pregnancy and the risk of miscarriage. epidem. By: Li DK, Odouli R, Wi S, Janevic T, Golditch I, Bracken TD, Senior R, Rankin R, Iriye R. Published in: Epidemiology 2002; 13 (1): 9-20	“The findings provide strong evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 1.6 $\mu$ T) may be associated with miscarriage risk.”	<a href="https://pubmed.ncbi.nlm.nih.gov/11805581/">https://pubmed.ncbi.nlm.nih.gov/11805581/</a>	<a href="https://www.emf-portal.org/en/article/8541">https://www.emf-portal.org/en/article/8541</a>

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14.	The risk of miscarriage and birth defects among women who use visual display terminals during pregnancy. <i>epidem.</i> By: Goldhaber MK, Polen MR, Hiatt RA. Published in: <i>Am J Ind Med</i> 1988; 13 (6): 695-706	“We found a significantly elevated risk of miscarriage for working women who reported using VDTs for more than 20 hr per week during the first trimester of pregnancy compared to other working women who reported not using VDTs (odds ratio 1.8, 95% CI: 1.2-2.8). ... Our results underscore the need for large cohort studies of working women that will provide objective measures of VDT exposures, ergonomic factors, and stress.	<a href="https://pubmed.ncbi.nlm.nih.gov/3389364/">https://pubmed.ncbi.nlm.nih.gov/3389364/</a>	<a href="https://www.emf-portal.org/en/article/9591">https://www.emf-portal.org/en/article/9591</a>
15.	A review on Electromagnetic fields (EMFs) and the reproductive system Ali Asghari, <sup>1</sup> Amir Afshin Khaki, <sup>2</sup> Asghar Rajabzadeh, <sup>3</sup> and Arash Khaki <sup>4</sup> , 2016	“Many studies have shown that electromagnetic fields can have destructive effects on sex hormones, gonadal function, fetal development, and pregnancy. So people must be aware of the negative effects of EMFs. Although the impact of the waves varied at different frequencies, it is better to stay as far away as possible from their origin because of the risks associated with exposures to these waves.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014506/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014506/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
16.	Genotoxicity Induced by Foetal and Infant Exposure to Magnetic Fields and Modulation of Ionising Radiation Effects Ion Udroui ,Antonio Antocchia,Caterina Tanzarella,Livio Giuliani,Francesca Pacchierotti,Eugenia Cordelli,Patrizia Eleuteri,Paola Villani,Antonella Sgura Published: November 11, 2015	“ELF–MF appeared to modulate the response of male germ cells to X-rays with an impact on proliferation/differentiation processes. These results point to the importance of tissue specificity and development on the impact of ELF-MF on the early stages of life and indicate the need of further research on the molecular mechanisms underlying ELF-MF biological effects.”	<a href="https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142259">https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142259</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>

## REPRODUCTIVE/PREGNANCY EFFECTS

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17.	Oxidative stress of brain and liver is increased by Wi-Fi (2.45GHz) exposure of rats during pregnancy and the development of newborns Ömer Çelik 1, Mehmet Cemal Kahya 2, Mustafa Nazıroğlu, 2015	“In conclusion, Wi-Fi-induced oxidative stress in the brain and liver of developing rats was the result of reduced GSH-Px, GSH and antioxidant vitamin concentrations. Moreover, the brain seemed to be more sensitive to oxidative injury compared to the liver in the development of newborns.”	<a href="https://pubmed.ncbi.nlm.nih.gov/26520617/">https://pubmed.ncbi.nlm.nih.gov/26520617/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
18.	Maternal exposure to a continuous 900-MHz electromagnetic field provokes neuronal loss and pathological changes in cerebellum of 32-day-old female rat offspring Ersan Odacı 1, Hatice Hancı 2, Ayşe İkinci 2, Osman Fikret Sönmez 3, Ali Aslan 4, Arzu Şahin 4, Haydar Kaya 5, Serdar Çolakoğlu 6, Orhan Baş , 2015	“In conclusion, our study results show that prenatal exposure to EMF affects the development of Purkinje cells in the female rat cerebellum and that the consequences of this pathological effect persist after the postnatal period.”	<a href="https://pubmed.ncbi.nlm.nih.gov/26391347/">https://pubmed.ncbi.nlm.nih.gov/26391347/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
19.	Different periods of intrauterine exposure to electromagnetic field: Influence on female rats' fertility, prenatal and postnatal development Author links open overlay panel Ali S.H.Alchalabi1ErkihunAklilu1Abd RahmanAziz1F.Malek2S.H.Ronald2Mohd AzamKhan1, 2015	“Prenatal development findings showed uterine congestion, haemorrhage, dead and reabsorbed fetuses were observed in exposure groups during 2nd and 3rd week of pregnancy unlike to control. 1st and 2nd week in-utero irradiation showed significant reduction with unequal and asymmetrical distribution of implantation sites and embryos in exposure groups except the control group. A number of live embryos were significantly reduced with an increasing number of dead and reabsorbed embryos in the 2 h/day of the 2nd-week exposure group in compared to control group. Malformation, haematoma, and oedematous fetuses in experimental groups were observed unlike control fetuses. A significant decrease in live fetuses and a	<a href="https://www.sciencedirect.com/science/article/pii/S2305050015000536">https://www.sciencedirect.com/science/article/pii/S2305050015000536</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>

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		significant decrease in body mass of foetuses at gestation day 20, unlike control group. Postnatal observations showed haematoma, congestion, short tail, malformation and growth restriction and delay in some growth markers were observed. In-utero irradiation for 2 and three weeks induced oxidative stress in pregnant rats.”		
20.	Use of mobile phone during pregnancy and the risk of spontaneous abortion Fatemeh Shamsi Mahmoudabadi, Saeideh Ziaei, corresponding author Mohammad Firoozabadi, and Anoshirvan Kazemnejad, 2015	“the present result suggests that the use of cell phones may be related to early spontaneous abortions, thus further study is warranted.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416385/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416385/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
21.	Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation Igor Yakymenko 1, Olexandr Tsybulin 2, Evgeniy Sidorik 1, Diane Henshel 3, Olga Kyrylenko 4, Sergiy Kyrylenko 5, 2016	“In conclusion, our analysis demonstrates that low-intensity RFR is an expressive oxidative agent for living cells with a high pathogenic potential and that the oxidative stress induced by RFR exposure should be recognized as one of the primary mechanisms of the biological activity of this kind of radiation.”	<a href="https://pubmed.ncbi.nlm.nih.gov/26151230/">https://pubmed.ncbi.nlm.nih.gov/26151230/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
22.	Effects of prenatal 900 MHz electromagnetic field exposures on the histology of rat kidney Mahmut Ulubay 1, Ahmad Yahyazadeh, Ö Gülsüm Deniz, Elfide Gizem Kıvrak, B Zuhai Altunkaynak, Gülünar Erdem, Süleyman Kaplan Int J Radiat Biol, 2015	“Prenatal exposure of rat kidneys to 900 MHz EMF resulted in increased total kidney volume and decreased the numbers of glomeruli. Moreover, MEL and $\omega$ -3 prevented adverse effects of EMF on the kidneys.”	<a href="https://pubmed.ncbi.nlm.nih.gov/25084839/">https://pubmed.ncbi.nlm.nih.gov/25084839/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>



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23.	The effect of exposure of rats during prenatal period to radiation spreading from mobile phones on renal development Recep Bedir 1, Levent Tumkaya, İbrahim Şehitoğlu, Yıldırım Kalkan, Adnan Yılmaz, Osman Zikrullah Şahin, 2015	“Our study shows that the electromagnetic waves propagated from mobile phones have harmful effects on the renal development of prenatal rats.”	<a href="https://pubmed.ncbi.nlm.nih.gov/25691088/">https://pubmed.ncbi.nlm.nih.gov/25691088/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
24.	Dosimetric study of fetal exposure to uniform magnetic fields at 50 Hz Ilaria Liorni 1, Marta Parazzini, Serena Focchi, Mark Douglas, Myles Capstick, Marie-Christine Gosselin, Niels Kuster, Paolo Ravazzani, 2014	“Some specific findings were: (1) the induced fields increased with gestational age; (2) the maxima electrical field were found in skin and fat tissues at each gestational age; (3) fetal tissue-specific exposure was modified as a function of gestational age and polarization; (4) the change of the fetal position in the womb significantly modified the induced electrical field in some fetal tissues; (5) the induced fields were in compliance with ICNIRP Guidelines and the results were quite below the permitted threshold limit.”	<a href="https://pubmed.ncbi.nlm.nih.gov/25266786/">https://pubmed.ncbi.nlm.nih.gov/25266786/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
25.	Influence of pregnancy stage and fetus position on the whole-body and local exposure of the fetus to RF-EMF N Varsier <sup>1,2</sup> , S Dahdouh <sup>2,3</sup> , A Serrurier <sup>3,4</sup> , J-P De la Plata <sup>3,5</sup> , J Anquez <sup>3,6</sup> , E D Angelini <sup>2,3</sup> , I Bloch <sup>2,3</sup> and J Wiart <sup>1,2</sup> , 2014	“By analyzing the influence of the pregnancy stage on the environmental whole-body and local exposure of a fetus in vertical position, head down or head up, in the 2100 MHz frequency band, we concluded that both whole-body and average brain exposures of the fetus decrease during the first pregnancy trimester, while they advance during the pregnancy due to the rapid weight gain of the fetus in these first stages.”	<a href="https://iopscience.iop.org/article/10.1088/0031-9155/59/17/4913">https://iopscience.iop.org/article/10.1088/0031-9155/59/17/4913</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>

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26.	<p>Autism-relevant social abnormalities in mice exposed perinatally to extremely low frequency electromagnetic fields</p> <p>Ibrahim Alsaeed 1, Faisal Al-Somali 1, Lama Sakhnini 2, Omar S Aljarallah 1, Rayan M M Hamdan 1, Saleh A Bubishate 1, Ziyab Khan Sarfaraz 1, Amer Kamal 3, 2014</p>	<p>“The examined mice were all males and exposed to EMF during the last week of gestation and for 7 days after delivery. The exposed mice demonstrated a lack of normal sociability and preference for social novelty while maintaining normal anxiety-like behavior, locomotion, motor coordination, and olfaction. Exposed mice also demonstrated decreased exploratory activity. We concluded that these results are supportive of the hypothesis of a causal link between exposure to ELF-EMF and ASD; however, replications of the study with further tests are recommended.”</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/24970316/">https://pubmed.ncbi.nlm.nih.gov/24970316/</a></p>	<p><a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a></p>
27.	<p>Fetal Radiofrequency Radiation Exposure From 800-1900 Mhz-Rated Cellular Telephones Affects Neurodevelopment and Behavior in Mice</p> <p>Tamir S. Aldad, Geliang Gan, Xiao-Bing Gao &amp; Hugh S. Taylor, 2012</p>	<p>“Mice exposed in-utero were hyperactive and had impaired memory as determined using the object recognition, light/dark box and step-down assays. ... Exposed mice had dose-responsive impaired glutamatergic synaptic transmission onto layer V pyramidal neurons of the prefrontal cortex. We present the first experimental evidence of neuropathology due to in-utero cellular telephone radiation. Further experiments are needed in humans or non-human primates to determine the risk of exposure during pregnancy.”</p>	<p><a href="https://www.nature.com/articles/srep00312">https://www.nature.com/articles/srep00312</a></p>	<p><a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a></p>
28.	<p>Maternal occupational exposure to extremely low frequency magnetic fields and the risk of brain cancer in the offspring</p> <p>Peizhi Li 1, John McLaughlin, Claire Infante-Rivard, 2009</p>	<p>“Results are suggestive of a possible association between maternal occupational ELF-MF exposure and certain brain tumors in their offspring.”</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/19224378/">https://pubmed.ncbi.nlm.nih.gov/19224378/</a></p>	<p><a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a></p>

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29.	Prenatal and postnatal exposure to cell phone use and behavioral problems in children Hozefa A Divan 1, Leeka Kheifets, Carsten Obel, Jørn Olsen, 2008	“Exposure to cell phones prenatally-and, to a lesser degree, postnatally-was associated with behavioral difficulties such as emotional and hyperactivity problems around the age of school entry.”	<a href="https://pubmed.ncbi.nlm.nih.gov/18467962/">https://pubmed.ncbi.nlm.nih.gov/18467962/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
30.	Effects of prenatal exposure to a 900 MHz electromagnetic field on the dentate gyrus of rats: a stereological and histopathological study Ersan Odaci 1, Orhan Bas, Suleyman Kaplan, 2008	“The results showed that prenatal EMF exposure caused a decrease in the number of granule cells in the dentate gyrus of the rats (P<0.01). This suggests that prenatal exposure to a 900 MHz EMF affects the development of the dentate gyrus granule cells in the rat hippocampus.”	<a href="https://pubmed.ncbi.nlm.nih.gov/18761003/">https://pubmed.ncbi.nlm.nih.gov/18761003/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
31.	Exposure to cell phone radiation up-regulates apoptosis genes in primary cultures of neurons and astrocytes Tian-Yong Zhao 1, Shi-Ping Zou, Pamela E Knapp, 2007	“The results show that even relatively short-term exposure to cell phone radiofrequency emissions can up-regulate elements of apoptotic pathways in cells derived from the brain, and that neurons appear to be more sensitive to this effect than astrocytes.”	<a href="https://pubmed.ncbi.nlm.nih.gov/17187929/">https://pubmed.ncbi.nlm.nih.gov/17187929/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
32.	Cell death induced by GSM 900-MHz and DCS 1800-MHz mobile telephony radiation Dimitris J Panagopoulos 1, Evangelia D Chavdoula, Ioannis P Nezis, Lukas H Margaritis, 2007	“Our present results suggest that the decrease in oviposition previously reported, is due to degeneration of large numbers of egg chambers after DNA fragmentation of their constituent cells, induced by both types of mobile telephony radiation. Induced cell death is recorded for the first time, in all types of cells constituting an egg chamber (follicle cells, nurse cells and the oocyte) and in all stages of the early and mid-oogenesis, from germarium to stage 10, during which programmed cell death does not physiologically occur.”	<a href="https://pubmed.ncbi.nlm.nih.gov/17045516/">https://pubmed.ncbi.nlm.nih.gov/17045516/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>

## REPRODUCTIVE/PREGNANCY EFFECTS

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
33.	Ultra high frequency-electromagnetic field irradiation during pregnancy leads to an increase in erythrocytes micronuclei incidence in rat offspring Amâncio Romanelli Ferreira 1, Tanise Knakievicz, Matheus Augusto de Bittencourt Pasquali, Daniel Pens Gelain, Felipe Dal-Pizzol, Claudio Enrique Rodriguez Fernández, Alvaro Augusto de Almeida de Salles, Henrique Bunselmeyer Ferreira, José Cláudio Fonseca Moreira, 2006	“Our results suggest that, under our experimental conditions, UHF-EMF is able to induce a genotoxic response in hematopoietic tissue during the embryogenesis through an unknown mechanism.”	<a href="https://pubmed.ncbi.nlm.nih.gov/16978664/">https://pubmed.ncbi.nlm.nih.gov/16978664/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
34.				

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
35.	Childhood leukaemia close to high-voltage power lines--the Geocap study, 2002-2007. epidem. By: Sermage-Faure C, Demoury C, Rudant J, Goujon-Bellec S, Guyot-Goubin A, Deschamps F, Hemon D, Clavel J	“The authors conclude that the present study, free from any selection bias, supports the previous international findings of an increase in acute childhood leukemia incidence close to power lines of 225-400 kV.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3658518/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3658518/</a>	<a href="https://www.emf-portal.org/en/article/22049">https://www.emf-portal.org/en/article/22049</a>
36.	Living near overhead high voltage transmission power lines as a risk factor for childhood acute lymphoblastic leukemia: a case-control study. epidem. Sohrabi MR, Tarjoman T, Abadi A, Yavari P Published in: Asian Pac J Cancer Prev 2010; 11 (2): 423-427	“The authors conclude that the study emphasizes that living close to high voltage power lines is a risk for childhood acute lymphoblastic leukemia.”	<a href="http://journal.waocp.org/article_25220_d00d9ce49fc23ac394df29e94539bf9b.pdf">http://journal.waocp.org/article_25220_d00d9ce49fc23ac394df29e94539bf9b.pdf</a>	<a href="https://www.emf-portal.org/en/article/19148">https://www.emf-portal.org/en/article/19148</a>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
37.	Pooled analysis of recent studies on magnetic fields and childhood leukaemia. <i>epidem.</i> Kheifets L, Ahlbom A, Crespi CM, Draper G, Hagihara J, Lowenthal RM, Mezei G, Oksuzyan S, Schüz J, Swanson J, Tittarelli A, Vinceti M, Wünsch-Filho V. Published in: <i>Br J Cancer</i> 2010; 103 (7): 1128-1135	“The authors conclude that recent studies on magnetic fields and childhood leukemia do not alter the previous assessment that magnetic fields are possibly carcinogenic.”	<a href="https://pubmed.ncbi.nlm.nih.gov/20877339/">https://pubmed.ncbi.nlm.nih.gov/20877339/</a>	<a href="https://www.emf-portal.org/en/article/18654">https://www.emf-portal.org/en/article/18654</a>
38.	Risk of hematological malignancies associated with magnetic fields exposure from power lines: a case-control study in two municipalities of northern Italy. <i>epidem.</i> By: Malagoli C, Fabbi S, Teggi S, Calzari M, Poli M, Ballotti E, Notari B, Bruni M, Palazzi G, Paolucci P, Vinceti M Published in: <i>Environ Health</i> 2010; 9 (1): 16-1-16-8	“The authors concluded that the results appeared to support the hypothesis that magnetic field exposure increases the risk of childhood leukemia.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2856548/pdf/1476-069X-9-16.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2856548/pdf/1476-069X-9-16.pdf</a>	<a href="https://www.emf-portal.org/en/article/18090">https://www.emf-portal.org/en/article/18090</a>
39.	A case-control study on the association between environmental factors and the occurrence of acute leukemia among children in Klang Valley, Malaysia. <i>epidem.</i> By: Rahman HIA, Shah SA, Alias H, Ibrahim HM Published in: <i>Asian Pac J Cancer Prev</i> 2008; 9 (4): 649-652	“A significantly increased risk for the occurrence of childhood acute leukemia was found for children who have lived in a distance of less than 200 m to a power line.”	<a href="http://journal.waocp.org/article_24833_df280ca3abceb09edf47889ebef98f9d.pdf">http://journal.waocp.org/article_24833_df280ca3abceb09edf47889ebef98f9d.pdf</a>	<a href="https://www.emf-portal.org/en/article/17433">https://www.emf-portal.org/en/article/17433</a>
40.	Exposure to magnetic fields and survival after diagnosis of childhood leukemia: a German cohort study. <i>epidem.</i> By: Svendsen AL, Weihkopf T, Kaatsch P, Schüz J Published in: <i>Cancer Epidemiol Biomarkers Prev</i> 2007; 16 (6): 1167-1171	“The results support the hypothesis that poorer survival among childhood leukemia patients occurred in children exposed to magnetic fields above 0.2 $\mu$ T.”	<a href="https://pubmed.ncbi.nlm.nih.gov/17548680/">https://pubmed.ncbi.nlm.nih.gov/17548680/</a>	<a href="https://www.emf-portal.org/en/article/14786">https://www.emf-portal.org/en/article/14786</a>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
41.	Acute childhood leukemias and exposure to magnetic fields generated by high voltage overhead power lines - a risk factor in Iran. epidem. By: Feizi AA, Arabi MA Published in: Asian Pac J Cancer Prev 2007; 8 (1): 69-72	“A statistically significant increased risk for acute leukemia were found for children living 500 m or less to a high voltage power line and for children with an exposure to magnetic fields above 0.45 $\mu$ T.”	<a href="http://journal.waocp.org/article_24562_71d429af6dd93b8bcdb90d94891382f8.pdf">http://journal.waocp.org/article_24562_71d429af6dd93b8bcdb90d94891382f8.pdf</a>	<a href="https://www.emf-portal.org/en/article/14691">https://www.emf-portal.org/en/article/14691</a>
42.	Magnetic fields and acute leukemia in children with Down syndrome. epidem. By: Mejia-Arangure JM, Fajardo-Gutierrez A, Perez-Saldivar ML, Gorodezky C, Martinez-Avalos A, Romero-Guzman L, Campo-Martinez MA, Flores-Lujano J, Salamanca-Gomez F, Velasquez-Perez L Published in: Epidemiology 2007; 18 (1): 158-161	“An increased risk for acute leukemia was observed for children with Down syndrome and a residential exposure to magnetic fields of 0.6 $\mu$ T or more. The authors concluded that the association between magnetic fields and acute leukemia in children with Down syndrome suggested the possibility of a causal role for magnetic fields in the etiology of leukemia among a genetically susceptible subgroup of children.”	<a href="https://pubmed.ncbi.nlm.nih.gov/17099322/">https://pubmed.ncbi.nlm.nih.gov/17099322/</a>	<a href="https://www.emf-portal.org/en/article/14348">https://www.emf-portal.org/en/article/14348</a>
43.	Paternal occupational exposure to electro-magnetic fields as a risk factor for cancer in children and young adults: a case-control study from the North of England. epidem. By: Pearce MS, Hammal DM, Dorak MT, McNally RJ, Parker L Published in: Pediatr Blood Cancer 2007; 49 (3): 280-286	“This large case-control study identified a significantly increased risk of leukemia among the offspring of men likely to have been occupationally exposed to EMF, with differing associations between males and females. Increased risks of chondrosarcoma and renal carcinoma were also seen, although based on smaller numbers.”	<a href="https://pubmed.ncbi.nlm.nih.gov/16941646/">https://pubmed.ncbi.nlm.nih.gov/16941646/</a>	<a href="https://www.emf-portal.org/en/article/14122">https://www.emf-portal.org/en/article/14122</a>
44.	Magnetic field exposure and long-term survival among children with leukaemia. epidem. By: Foliart DE, Pollock BH, Mezei G, Iriye R, Silva JM, Ebi KL, Kheifets L, Link MP, Kavet R Published in: Br J Cancer 2006; 94 (1): 161-164	“For overall survival, the hazard risk was significantly increased (based on 4 cases).”	<a href="https://pubmed.ncbi.nlm.nih.gov/16404370/">https://pubmed.ncbi.nlm.nih.gov/16404370/</a>	<a href="https://www.emf-portal.org/en/article/13388">https://www.emf-portal.org/en/article/13388</a>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
45.	Childhood cancer in relation to distance from high voltage power lines in England and Wales: a case-control study. <i>epidem.</i> By: Draper G, Vincent T, Kroll ME, Swanson J. Published in: <i>BMJ</i> 2005; 330 (7503): 1290-1292	“Children who lived at the time of birth within 600 m from a transmission line had an increased relative risk for leukemia.”	<a href="https://www.bmj.com/content/330/7503/1290.long">https://www.bmj.com/content/330/7503/1290.long</a>	<a href="https://www.emf-portal.org/en/article/12023">https://www.emf-portal.org/en/article/12023</a>
46.	Maternal occupational exposure to extremely low frequency magnetic fields during pregnancy and childhood leukemia. <i>epidem.</i> By: Infante-Rivard C, Deadman JE. Published in: <i>Epidemiology</i> 2003; 14 (4): 437-441	“Our results are compatible with an increased risk of childhood leukemia among children whose mothers were exposed to the highest occupational levels of ELF-MF during pregnancy.	<a href="https://pubmed.ncbi.nlm.nih.gov/12843769/">https://pubmed.ncbi.nlm.nih.gov/12843769/</a>	<a href="https://www.emf-portal.org/en/article/10038">https://www.emf-portal.org/en/article/10038</a>
47.	Residential magnetic fields as a risk factor for childhood acute leukaemia: results from a German population-based case-control study. <i>epidem.</i> By: Schüz J, Grigat JP, Brinkmann K, Michaelis J Published in: <i>Int J Cancer</i> 2001; 91 (5): 728-735	“A significant association was observed between childhood leukemia and magnetic field exposure above 0.2 $\mu$ T during night.”	<a href="https://onlinelibrary.wiley.com/doi/epdf/10.1002/1097-0215(200002)9999:9999%3C::AID-IJC1097%3E3.0.CO;2-D">https://onlinelibrary.wiley.com/doi/epdf/10.1002/1097-0215(200002)9999:9999%3C::AID-IJC1097%3E3.0.CO;2-D</a>	<a href="https://www.emf-portal.org/en/article/6207">https://www.emf-portal.org/en/article/6207</a>
48.	Overhead electricity power lines and childhood leukemia: a registry-based, case-control study. <i>epidem.</i> By: Bianchi N, Crosignani P, Rovelli A, Tittarelli A, Carnelli CA, Rossitto F, Vanelli U, Porro E, Berrino F Published in: <i>Tumori</i> 2000; 86 (3): 195-198	“The authors concluded that the results provide some further evidence of an association between childhood leukemia and exposure of low-frequency electromagnetic fields from overhead power lines.”	<a href="https://pubmed.ncbi.nlm.nih.gov/10939597/">https://pubmed.ncbi.nlm.nih.gov/10939597/</a>	<a href="https://www.emf-portal.org/en/article/4707">https://www.emf-portal.org/en/article/4707</a>
49.	A pooled analysis of magnetic fields, wire codes, and childhood leukemia. Childhood Leukemia-EMF Study Group. <i>epidem.</i> By: Greenland S, Sheppard AR, Kaune WT, Poole C, Kelsh MA Published in: <i>Epidemiology</i> 2000; 11 (6): 624-634	“The magnetic field estimates tend to show little or no association of fields below 0.3 $\mu$ T with childhood leukemia, but all studies with cases and controls in the categorie more than 0.3 $\mu$ T showed positive associations.”	<a href="https://pubmed.ncbi.nlm.nih.gov/11055621/">https://pubmed.ncbi.nlm.nih.gov/11055621/</a>	<a href="https://www.emf-portal.org/en/article/4632">https://www.emf-portal.org/en/article/4632</a>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
50.	A pooled analysis of magnetic fields and childhood leukaemia. <i>epidem.</i> By: Ahlbom A, Day N, Feychting M, Roman E, Skinner J, Dockerty J, Linet M, McBride M, Michaelis J, Olsen J, Tynes T, Verkasalo PK. Published in: <i>Br J Cancer</i> 2000; 83 (5): 692-698	“A statistically significant relative risk estimate of 2 for childhood leukemia was observed for children with residential magnetic fields of 0.4 $\mu$ T and more.”	<a href="https://pubmed.ncbi.nlm.nih.gov/10944614/">https://pubmed.ncbi.nlm.nih.gov/10944614/</a>	<a href="https://www.emf-portal.org/en/article/4510">https://www.emf-portal.org/en/article/4510</a>
51.	Residential exposure to electromagnetic fields and childhood leukaemia: a meta-analysis. <i>epidem.</i> By: Angelillo IF, Villari P Published in: <i>Bull World Health Organ</i> 1999; 77 (11): 906-915	“A statistically significant increased risk for childhood leukemia was observed in the meta-analysis of studies using exposure assessment methods based on wire code configuration and 24-h measurements of magnetic fields.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2557764/pdf/10612886.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2557764/pdf/10612886.pdf</a>	<a href="https://www.emf-portal.org/en/article/5505">https://www.emf-portal.org/en/article/5505</a>
52.	Parental occupation and other factors and cancer risk in children: II. Occupational factors. <i>epidem.</i> By: Smulevich VB, Solionova LG, Belyakova SV Published in: <i>Int J Cancer</i> 1999; 83 (6): 718-722	“Paternal exposures to solvents, oil products, unspecified chemicals and ionizing radiation have been shown to increase the risk of leukemia (Lowengart et al., 1987) and brain cancer (Peters et al., 1981) in childhood. ... Our study confirmed the relationship between these paternal exposures and risk of leukemia and lymphoma in children. In addition, our study suggests an association of EMF and VDU with these and some other cancer types, and we recommend special investigations of these factors.	<a href="https://onlinelibrary.wiley.com/doi/epdf/10.1002/%28SICI%291097-0215%2819991210%2983%3A6%3C718%3A%3AAID-IJC3%3E3.0.CO%3B2-T">https://onlinelibrary.wiley.com/doi/epdf/10.1002/%28SICI%291097-0215%2819991210%2983%3A6%3C718%3A%3AAID-IJC3%3E3.0.CO%3B2-T</a>	<a href="https://www.emf-portal.org/en/article/4460">https://www.emf-portal.org/en/article/4460</a>
53.	Residential magnetic fields predicted from wiring configurations: II. Relationships To childhood leukemia. <i>epidem.</i> By: Thomas DC, Bowman JD, Jiang L, Jiang F, Peters JM Published in: <i>Bioelectromagnetics</i> 1999; 20 (7): 414-422	“...a significant dose response was seen...These findings support the hypothesis that magnetic fields from electrical lines are causally related to childhood leukemia but that this association has been inconsistent among epidemiologic studies due to different types of errors in exposure assessment.”	<a href="https://pubmed.ncbi.nlm.nih.gov/10495306/">https://pubmed.ncbi.nlm.nih.gov/10495306/</a>	<a href="https://www.emf-portal.org/en/article/3636">https://www.emf-portal.org/en/article/3636</a>



## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
54.	<p>Childhood leukemia and personal monitoring of residential exposures to electric and magnetic fields in Ontario, Canada. <i>epidem.</i>                      By: Green LM, Miller AB, Agnew DA, Greenberg ML, Li J, Villeneuve PJ, Tibshirani R                      Published in: <i>Cancer Causes Control</i> 1999; 10 (3): 233-243</p>	<p>“An association between magnetic field exposure as measured with the personal monitor and increased risk of childhood leukemia was found, particularly in younger children.”</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/10454069/">https://pubmed.ncbi.nlm.nih.gov/10454069/</a></p>	<p><a href="https://www.emf-portal.org/en/article/1043">https://www.emf-portal.org/en/article/1043</a></p>
55.	<p>Combined risk estimates for two German population-based case-control studies on residential magnetic fields and childhood acute leukemia. <i>epidem.</i>                      By: Michaelis J, Schüz J, Meinert R, Zemann E, Grigat JP, Kaatsch P, Kaletsch U, Miesner A, Brinkmann K, Kalkner W, Karner H                      Published in: <i>Epidemiology</i> 1998; 9 (1): 92-94</p>	<p>“The results of this study based on measured magnetic field strengths gave some support to the hypothesis that evaluated exposure to magnetic fields may be associated with childhood leukemia.</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/9430275/">https://pubmed.ncbi.nlm.nih.gov/9430275/</a></p>	<p><a href="https://www.emf-portal.org/en/article/1959">https://www.emf-portal.org/en/article/1959</a></p>
56.	<p>Risk of leukemia in children living near high-voltage transmission lines. <i>epidem.</i>                      By: Li CY, Lee WC, Lin RS                      Published in: <i>J Occup Environ Med</i> 1998; 40 (2): 144-147</p>	<p>“The findings suggest that children living near HVTL tend to experience an elevated risk of leukemia.</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/9503290/">https://pubmed.ncbi.nlm.nih.gov/9503290/</a></p>	<p><a href="https://www.emf-portal.org/en/article/1955">https://www.emf-portal.org/en/article/1955</a></p>
57.	<p>Risks of leukaemia among residents close to high voltage transmission electric lines. <i>epidem.</i>                      By: Theriault G, Li CY. Published in: <i>Occup Environ Med</i> 1997; 54 (9): 625-628</p>	<p>“If the present comparison is correct, it indicates that contrary to widespread opinion, there is reasonable consistency between studies on the relation between exposure to magnetic fields and leukaemia when exposure is based on calculated fields from high voltage transmission lines at time of diagnosis. The previous studies that have yielded negative results may have been handicapped by not</p>	<p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1128834/pdf/oenvmed0093-0001.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1128834/pdf/oenvmed0093-0001.pdf</a></p>	<p><a href="https://www.emf-portal.org/en/article/11502">https://www.emf-portal.org/en/article/11502</a></p>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		having a large enough exposed population to be able to unveil a true association. When researchers have worked with cohorts defined on the basis of their exposure-such as people living in corridors alongside high voltage transmission lines or cohorts selected from high density populations living close to high voltage lines-they have obtained results that are consistent and do show an association between leukemia and exposure to magnetic fields.”		
58.	Hypothesis: the risk of childhood leukemia is related to combinations of power-frequency and static magnetic fields. epidem. By: Bowman JD, Thomas DC, London SJ, Peters JM Published in: Bioelectromagnetics 1995; 16 (1): 48-59	“Although the risk estimates are based on limited magnetic field measurements for a small number of subjects, these findings suggest that the risk of childhood leukemia may be related to the combined effects of the static and ELF magnetic fields. Further tests of the hypothesis are proposed”	<a href="https://pubmed.ncbi.nlm.nih.gov/7748203/">https://pubmed.ncbi.nlm.nih.gov/7748203/</a>	<a href="https://www.emf-portal.org/en/article/3454">https://www.emf-portal.org/en/article/3454</a>
59.	Variation in cancer risk estimates for exposure to powerline frequency. epidem. By: Miller MA, Murphy JR, Miller TI, Ruttenber AJ Published in: Risk Anal 1995; 15 (2): 281-287	“Distance measures and the calculated indices produced risk estimates which were significant only for leukemia.”	<a href="https://pubmed.ncbi.nlm.nih.gov/7597262/">https://pubmed.ncbi.nlm.nih.gov/7597262/</a>	<a href="https://www.emf-portal.org/en/article/1602">https://www.emf-portal.org/en/article/1602</a>
60.	Magnetic fields and childhood cancer - a pooled analysis of two Scandinavian studies. epidem. By: Feychting M, Schulgen G, Olsen J, Ahlbom A Published in: Eur J Cancer 1995; 31 (12): 2035-2039	“The results support the hypothesis of an association between magnetic fields and childhood leukemia.”	<a href="https://pubmed.ncbi.nlm.nih.gov/8562161/">https://pubmed.ncbi.nlm.nih.gov/8562161/</a>	<a href="https://www.emf-portal.org/en/article/1429">https://www.emf-portal.org/en/article/1429</a>
61.	Residential electric consumption and childhood cancer in Canada (1971-1986) epidem. By: Kraut A, Tate R, Tran N	“Stronger correlations were observed between provincial REC rank and brain cancer and leukemia ranks than with lymphoma and other cancer rankings. These findings are consistent	<a href="https://pubmed.ncbi.nlm.nih.gov/8185384/">https://pubmed.ncbi.nlm.nih.gov/8185384/</a>	<a href="https://www.emf-portal.org/en/article/1965">https://www.emf-portal.org/en/article/1965</a>

## CHILDHOOD LEUKEMIA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
	Published in: Arch Environ Health 1994; 49 (3): 156-159	with, but do not prove, a causal association between childhood brain cancer and leukemia and REC.”		
62.	Risk of childhood leukemia in areas passed by high power lines. epidem. By: Lin RS, Lee WC Published in: Rev Environ Health 1994; 10 (2): 97-103	“the authors concluded that the results support the association between childhood leukemia and residential electromagnetic fields.”	<a href="https://pubmed.ncbi.nlm.nih.gov/8047676/">https://pubmed.ncbi.nlm.nih.gov/8047676/</a>	<a href="https://www.emf-portal.org/en/article/1899">https://www.emf-portal.org/en/article/1899</a>
63.	Magnetic fields and cancer in children residing near Swedish high-voltage power lines. epidem. By: Feychting M, Ahlbom A Published in: Am J Epidemiol 1993; 138 (7): 467-481	“An increased risk for leukemia in children and exposure to calculated historical magnetic fields above 0.2 $\mu$ T was observed.”	<a href="https://pubmed.ncbi.nlm.nih.gov/8213751/">https://pubmed.ncbi.nlm.nih.gov/8213751/</a>	<a href="https://www.emf-portal.org/en/article/1982">https://www.emf-portal.org/en/article/1982</a>
64.	Childhood cancer in relation to a modified residential wire code. epidem. By: Savitz DA, Kaune WT Published in: Environ Health Perspect 1993; 101 (1): 76-80	“The modified wire code generated risk estimates that were precise elevated for the high wire code compared to low wire code classifications. The odds ratios for childhood cancer, leukemia, and brain cancer were significantly elevated.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1519679/pdf/envhper00371-0078.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1519679/pdf/envhper00371-0078.pdf</a>	<a href="https://www.emf-portal.org/en/article/1427">https://www.emf-portal.org/en/article/1427</a>

## OTHER EFFECTS ON YOUNG CHILDREN

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## OTHER EFFECTS ON YOUNG CHILDREN

1.	<p>Why children absorb more microwave radiation than adults: The consequences            Author links open overlay panel.            Lloyd Morgana Santosh Kesarib Devra Lee Davisa,            2014</p>	<p>“The risk to children and adolescent from exposure to microwave radiating devices is considerable...</p> <p>(1) Children absorb greater amount of microwave radiation (MWR) than adults;</p> <p>(2) MWR is a Class 2B (possible) carcinogen as is carbon black, carbon tetrachloride, chloroform, DDT, lead, nickel, phenobarbital, styrene, diesel fuel, and gasoline. It seems clear that we would not expose children to these other agents, so why would we expose children to microwave radiation?</p> <p>(3) Fetuses are even more vulnerable than children. Therefore pregnant women should avoid exposing their fetus to microwave radiation.</p> <p>(4) Adolescent girls and women should not place cellphones in their bras or in hijabs.</p> <p>(5) Cellphone manual warnings make clear an overexposure problem exists.</p> <p>(6) Wireless devices are radio transmitters, not toys. Selling toys that use them should be banned.</p> <p>(7) Government warnings have been issued but most of the public are unaware of such warnings.</p> <p>(8) Exposure limits are inadequate and should be revised such that they are adequate.”</p>	<p><a href="https://www.sciencedirect.com/science/article/pii/S2213879X14000583">https://www.sciencedirect.com/science/article/pii/S2213879X14000583</a></p>	<p><a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a></p>
2.	<p>A Prospective Study of In-utero Exposure to Magnetic Fields and the Risk of Childhood Obesity</p>	<p>“Prenatal exposure to high MF level was associated with increased risk of being obese in</p>	<p><a href="https://www.nature.com/articles/srep00540">https://www.nature.com/articles/srep00540</a></p>	<p><a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a></p>

## OTHER EFFECTS ON YOUNG CHILDREN

	De-Kun Li, Jeannette R. Ferber, Roxana Odouli & Charles P. Quesenberry Jr, 2012	offspring than those with lower MF level. ... 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.”		<a href="https://www.ncbi.nlm.nih.gov/science/#section1">are-4g-5g/science/#section1</a>
3.	Epidemiological Characteristics of Mobile Phone Ownership and Use in Korean Children and Adolescents, Yoon-Hwan Byun,1 Mina Ha,corresponding author,2,3 Ho-Jang Kwon,2,3 Kyung-Hwa Choi,4 Eunae Burm,4 Yeyong Choi,5 Myung-Ho Lim,3,6 Seung-Jin Yoo,3 Ki-Chung Paik,3,6 Hyung-Do Choi,7 and Nam Kim8	“Considering the epidemiological characteristics of mobile phone use, precautionary measures to prevent unnecessary exposure to mobile phones are needed in children and adolescents.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3909745/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3909745/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
4.	Exposure to radio-frequency electromagnetic fields and behavioural problems in Bavarian children and adolescents Silke Thomas, Sabine Heinrich, Rüdiger von Kries & Katja Radon, 2009	“7%of the children and 5% of the adolescents showed an abnormal mental behavior. ... The results showed an association between exposure and conduct problems for adolescents (3.7; 1.6–8.4) and children (2.9; 1.4–5.9).”	<a href="https://link.springer.com/article/10.1007/s10654-009-9408-x">https://link.springer.com/article/10.1007/s10654-009-9408-x</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>
5.	The Sensitivity of Children to Electromagnetic Fields, Leeka Kheifets, Michael Repacholi, Rick Saunders and Emilie van Deventer Pediatrics August 2005	“To evaluate information relevant to children's sensitivity to both ELF and RF EMFs and to identify research needs, the World Health Organization held an expert workshop in Istanbul, Turkey, in June 2004. This article is based on discussions from the workshop and ... concludes with a recommendation for additional research and the development of precautionary policies in the face of scientific uncertainty.”	<a href="https://pediatrics.aappublications.org/content/116/2/e303#abstract-1">https://pediatrics.aappublications.org/content/116/2/e303#abstract-1</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section1">https://scientists4wiredtech.com/what-are-4g-5g/science/#section1</a>

## OTHER EFFECTS ON YOUNG CHILDREN

NEUROGENERATIVE DISEASES				
	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
65.	Occupational Exposures and Neurodegenerative Diseases-A Systematic Literature Review and Meta-Analyses. <i>epidem.</i> By: Gunnarsson LG, Bodin L. Published in: <i>Int J Environ Res Public Health</i> 2019; 16 (3): E337	“The authors concluded that occupational exposure to extremely low frequency magnetic fields seemed to involve some increase in risk for amyotrophic lateral sclerosis and Alzheimer's disease.”	<a href="https://pubmed.ncbi.nlm.nih.gov/30691095/">https://pubmed.ncbi.nlm.nih.gov/30691095/</a>	<a href="https://www.emf-portal.org/en/article/37212">https://www.emf-portal.org/en/article/37212</a>
66.	Associations of Electric Shock and Extremely Low-Frequency Magnetic Field Exposure With the Risk of Amyotrophic Lateral Sclerosis. <i>epidem.</i> By: Peters S, Visser AE, D'Ovidio F, Beghi E, Chiò A, Logroscino G, Hardiman O, Kromhout H, Huss A, Veldink J, Vermeulen R, van den Berg LH, Euro-MOTOR consortium. Published in: <i>Am J Epidemiol</i> 2019; 188 (4): 796-805	“The authors conclude that the findings support possible independent associations of occupational exposure to extremely low-frequency magnetic fields and electric shocks with the risk of amyotrophic lateral sclerosis.”	<a href="https://academic.oup.com/aje/article-abstract/188/4/796/5288098?redirectedFrom=PDF">https://academic.oup.com/aje/article-abstract/188/4/796/5288098?redirectedFrom=PDF</a>	<a href="https://www.emf-portal.org/en/article/37118">https://www.emf-portal.org/en/article/37118</a>
67.	Amyotrophic Lateral Sclerosis and Occupational Exposures: A Systematic Literature Review and Meta-Analyses. <i>epidem.</i> By: Gunnarsson LG, Bodin L. Published in: <i>Int J Environ Res Public Health</i> 2018; 15 (11)	“The authors concluded that the results suggest a possible association between amyotrophic lateral sclerosis and occupational exposure to extremely low frequency magnetic fields.”	<a href="https://pubmed.ncbi.nlm.nih.gov/30373166/">https://pubmed.ncbi.nlm.nih.gov/30373166/</a>	<a href="https://www.emf-portal.org/en/article/36481">https://www.emf-portal.org/en/article/36481</a>
68.	Occupational exposure to extremely low-frequency magnetic fields and the risk of ALS: A systematic review and meta-analysis. <i>epidem.</i> By:	“The authors concluded that an increased risk of amyotrophic lateral sclerosis was observed in workers occupationally exposed to extremely	<a href="https://pubmed.ncbi.nlm.nih.gov/29350413/">https://pubmed.ncbi.nlm.nih.gov/29350413/</a>	<a href="https://www.emf-portal.org/en/article/34442">https://www.emf-portal.org/en/article/34442</a>

## NEUROGENERATIVE DISEASES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
	Huss A, Peters S, Vermeulen R. Published in: Bioelectromagnetics 2018; 39 (2): 156-163	low frequency magnetic fields . Results of studies depended on the quality of the exposure assessment.”		
69.	Occupational exposure to extremely low-frequency magnetic fields and risk for central nervous system disease: an update of a Danish cohort study among utility workers. <i>epidem.</i> By: Pedersen C, Poulsen AH, Rod NH, Frei P, Hansen J, Grell K, Raaschou-Nielsen O, Schüz J, Johansen C. Published in: <i>Int Arch Occup Environ Health</i> 2017; 90 (7): 619-628	“The authors conclude that elevated risks of dementia, motor neurone disease, multiple sclerosis and epilepsy and lower risks of Parkinson disease in relation to exposure to extremely low-frequency magnetic fields were observed in a large cohort of utility employees.”	<a href="https://pubmed.ncbi.nlm.nih.gov/28429106/">https://pubmed.ncbi.nlm.nih.gov/28429106/</a>	<a href="https://www.emf-portal.org/en/article/31728">https://www.emf-portal.org/en/article/31728</a>
70.	Occupational exposure and amyotrophic lateral sclerosis in a prospective cohort Tom Koeman 1, Pauline Slottje 1, Leo J Schouten 2, Susan Peters 1 3, Anke Huss 1, Jan H Veldink 3, Hans Kromhout 1, Piet A van den Brandt 2, Roel Vermeulen 1 4	“The authors conclude that the results offer further support for an association between exposure to extremely low-frequency magnetic fields and amyotrophic lateral sclerosis.”	<a href="https://pubmed.ncbi.nlm.nih.gov/28356332/">https://pubmed.ncbi.nlm.nih.gov/28356332/</a>	<a href="https://www.emf-portal.org/en/article/31615">https://www.emf-portal.org/en/article/31615</a>
	Occupational exposure to magnetic fields and electric shocks and risk of ALS: The Swiss National Cohort. <i>epidem.</i> By: Huss A, Spoerri A, Egger M, Kromhout H, Vermeulen R. Published in: <i>Amyotroph Lateral Scler Frontotemporal Degener</i> 2015; 16 (1-2): 80-85	“The authors concluded that there was an association between exposure to extremely low frequency magnetic fields and mortality from amyotrophic lateral sclerosis among workers with a higher likelihood of long-term exposure.”	<a href="https://pubmed.ncbi.nlm.nih.gov/25229273/">https://pubmed.ncbi.nlm.nih.gov/25229273/</a>	<a href="https://www.emf-portal.org/en/article/25763">https://www.emf-portal.org/en/article/25763</a>
71.	Work-related exposure to extremely low-frequency magnetic fields and dementia: results from the population-based study of dementia in Swedish twins. <i>epidem.</i> By: Andel R, Crowe M, Feychting M, Pedersen NL, Fratiglioni L, Johansson B, Gatz M. Published in: <i>J Gerontol A Biol Sci Med Sci</i> 2010; 65 (11): 1220-1227	“The authors conclude that work-related exposure to extremely low-frequency magnetic fields may increase the risk of dementia with an earlier onset and among former manual workers.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2954236/pdf/glq112.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2954236/pdf/glq112.pdf</a>	<a href="https://www.emf-portal.org/en/article/18455">https://www.emf-portal.org/en/article/18455</a>

## NEUROGENERATIVE DISEASES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
72.	Morbidity experience in populations residentially exposed to 50 Hz magnetic fields: methodology and preliminary findings of a cohort study. <i>epidem.</i> By: Fazzo L, Tancioni V, Polichetti A, Iavarone I, Vanacore N, Papini P, Farchi S, Bruno C, Pasetto R, Borgia P, Comba P. Published in: <i>Int J Occup Environ Health</i> 2009; 15 (2): 133-142	“A significant increase for primary cancers (n=10) were observed among subjects living for more than 30 years close to a power line. A significant increase for all neoplasms (n=16), primary cancers and secondary cancers as well for ischaemic diseases (n=6) were found among residents of sub-area A with the highest exposure.”	<a href="https://pubmed.ncbi.nlm.nih.gov/19496479/">https://pubmed.ncbi.nlm.nih.gov/19496479/</a>	<a href="https://www.emf-portal.org/en/article/17171">https://www.emf-portal.org/en/article/17171</a>
73.	Residence near power lines and mortality from neurodegenerative diseases: longitudinal study of the Swiss population. <i>epidem.</i> By: Huss A, Spoerri A, Egger M, Rösli M. Published in: <i>Am J Epidemiol</i> 2009; 169 (2): 167-175	“The authors concluded that the results indicate a possible association between magnetic fields of power lines and the risks of Alzheimer disease and senile dementia.”	<a href="https://academic.oup.com/aje/article/169/2/167/95445">https://academic.oup.com/aje/article/169/2/167/95445</a>	<a href="https://www.emf-portal.org/en/article/16511">https://www.emf-portal.org/en/article/16511</a>
74.	A case-control study of occupational magnetic field exposure and Alzheimer's disease: results from the California Alzheimer's Disease Diagnosis and Treatment Centers. <i>epidem.</i> By: Davanipour Z, Tseng CC, Lee PJ, Sobel E. Published in: <i>BMC Neurol</i> 2007; 7: 13	“Elevated occupational MF exposure was associated with an increased risk of AD. Based on previous published studies, the results likely pertain to the general population.”	<a href="https://bmcneurol.biomedcentral.com/track/pdf/10.1186/1471-2377-7-13">https://bmcneurol.biomedcentral.com/track/pdf/10.1186/1471-2377-7-13</a>	<a href="https://bmcneurol.biomedcentral.com/track/pdf/10.1186/1471-2377-7-13">https://bmcneurol.biomedcentral.com/track/pdf/10.1186/1471-2377-7-13</a>
75.	Occupational exposure to low frequency magnetic fields and dementia: a case-control study. <i>epidem.</i> By: Seidler A, Geller P, Nienhaus A, Bernhardt T, Ruppe I, Eggert S, Hietanen M, Kauppinen T, Frölich L. Published in: <i>Occup Environ Med</i> 2007; 64 (2): 108-114	“. Mainly owing to the limited power of our study, we cannot exclude an aetiological relevance of high-dose electromagnetic fields on dementia. According to our data, we nevertheless regard a strong effect of low-dose electromagnetic fields on the development of late-onset dementia as rather improbable.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2078432/pdf/108.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2078432/pdf/108.pdf</a>	<a href="https://www.emf-portal.org/en/article/14275">https://www.emf-portal.org/en/article/14275</a>



## NEUROGENERATIVE DISEASES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
76.	Potential occupational risks for neurodegenerative diseases. <i>epidem.</i> By: Park RM, Schulte PA, Bowman JD, Walker JT, Bondy SC, Yost MG, Touchstone JA, Dosemeci M. Published in: <i>Am J Ind Med</i> 2005; 48 (1): 63-77	“Support was observed for hypothesized excess neurodegenerative disease associated with a variety of occupations, 60 Hz magnetic fields and welding.”	<a href="https://pubmed.ncbi.nlm.nih.gov/15940722/">https://pubmed.ncbi.nlm.nih.gov/15940722/</a>	<a href="https://www.emf-portal.org/en/article/12044">https://www.emf-portal.org/en/article/12044</a>
77.	Occupational exposure to electromagnetic fields and risk of Alzheimer's disease. <i>epidem.</i> By: Qiu C, Fratiglioni L, Karp A, Winblad B, Bellander T. Published in: <i>Epidemiology</i> 2004; 15 (6): 687-694	“Longterm occupational exposure to a higher magnetic field level may increase the risk of dementia and Alzheimer's disease in men.”	<a href="https://pubmed.ncbi.nlm.nih.gov/15475717/">https://pubmed.ncbi.nlm.nih.gov/15475717/</a>	<a href="https://www.emf-portal.org/en/article/11322">https://www.emf-portal.org/en/article/11322</a>
78.	Neurodegenerative diseases in welders and other workers exposed to high levels of magnetic fields. <i>epidem.</i> By: Hakansson N, Gustavsson P, Johansen C, Floderus B. Published in: <i>Epidemiology</i> 2003; 14 (4): 420-426	“The findings support previous observations of an increased risk of Alzheimer's disease and ALS among employees occupationally exposed to ELF-MF. Further studies based on morbidity data are warranted.”	<a href="https://pubmed.ncbi.nlm.nih.gov/12843765/">https://pubmed.ncbi.nlm.nih.gov/12843765/</a>	<a href="https://www.emf-portal.org/en/article/10041">https://www.emf-portal.org/en/article/10041</a>
79.	Exposure to electromagnetic fields and risk of central nervous system disease in utility workers. <i>epidem.</i> By: Johansen C. Published in: <i>Epidemiology</i> 2000; 11 (5): 539-543	“The increased risk for senile dementia and motorneuron diseases may be associated with above-average levels of exposure to electromagnetic fields.”	<a href="https://pubmed.ncbi.nlm.nih.gov/10955406/">https://pubmed.ncbi.nlm.nih.gov/10955406/</a>	<a href="https://www.emf-portal.org/en/article/6286">https://www.emf-portal.org/en/article/6286</a>
80.	Dementia and occupational exposure to magnetic fields. <i>epidem.</i> By: Feychting M, Pedersen NL, Svedberg P, Floderus B, Gatz M. Published in: <i>Scand J Work Environ Health</i> 1998; 24 (1): 46-53	“These results only partially support previous findings, but they indicate that occupational magnetic field exposure may possibly influence the development of dementia.”	<a href="https://www.sjweh.fi/show_abstract.php?abstract_id=277">https://www.sjweh.fi/show_abstract.php?abstract_id=277</a>	<a href="https://www.emf-portal.org/en/article/3664">https://www.emf-portal.org/en/article/3664</a>
81.	Mortality from amyotrophic lateral sclerosis, other chronic disorders, and electric shocks among utility workers. <i>epidem.</i> By: Johansen C, Olsen J. Published in: <i>Am J Epidemiol</i> 1998; 148 (4): 362-368	“The excess mortality from amyotrophic lateral sclerosis seems to be associated with above-average levels of exposure to electromagnetic fields and may be due to repeated episodes with electric shocks.”	<a href="https://pubmed.ncbi.nlm.nih.gov/9717880/">https://pubmed.ncbi.nlm.nih.gov/9717880/</a>	<a href="https://www.emf-portal.org/en/article/991">https://www.emf-portal.org/en/article/991</a>



## EEG AND BRAIN RESPONSE

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
6.	Loughran SP et al, (August 2011) Individual differences in the effects of mobile phone exposure on human sleep: Rethinking the problem, Bioelectromagnetics. 2011 Aug 3. doi: 10.1002/bem.20691. [Epub ahead of print]	"These results confirm previous findings of mobile phone-like emissions affecting the EEG during non-REM sleep. Importantly, this low-level effect was also shown to be sensitive to individual variability. Furthermore, this indicates that previous negative results are not strong evidence for a lack of an effect and, given the far-reaching implications of mobile phone research, we may need to rethink the interpretation of results and the manner in which research is conducted in this field."	<a href="https://pubmed.ncbi.nlm.nih.gov/21812009/">https://pubmed.ncbi.nlm.nih.gov/21812009/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
7.	Vorobyov V et al, (May 2010) Repeated exposure to low-level extremely low frequency-modulated microwaves affects cortex-hypothalamus interplay in freely moving rats: EEG study, Int J Radiat Biol. 2010 May;86(5):376-83	These results are in line with evidence that repeated low-level exposure to ELF-MW affects brain functioning and provide an additional approach when analysing underlying mechanisms."	<a href="https://pubmed.ncbi.nlm.nih.gov/20397842/">https://pubmed.ncbi.nlm.nih.gov/20397842/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
8.	Robertson JA et al, (August 2009) Low-frequency pulsed electromagnetic field exposure can alter neuroprocessing in humans, J R Soc Interface. 2009 Aug 5.	"These results show, for the first time, that the neuromodulation induced by exposure to low-intensity low-frequency magnetic fields can be observed in humans using functional brain imaging and that the detection mechanism for these effects may be different from those used by animals for orientation and navigation. Magnetoreception may be more common than presently thought."	<a href="https://pubmed.ncbi.nlm.nih.gov/19656823/">https://pubmed.ncbi.nlm.nih.gov/19656823/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>

## EEG AND BRAIN RESPONSE

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
9.	Wang B, Lai H, (January 2000) Acute exposure to pulsed 2450-MHz microwaves affects water-maze performance of rats, Bioelectromagnetics. 2000 Jan;21(1):52-6	"These results show that acute exposure to pulsed microwaves caused a deficit in spatial "reference" memory in the rat"	<a href="https://pubmed.ncbi.nlm.nih.gov/10615092/">https://pubmed.ncbi.nlm.nih.gov/10615092/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
10.	van Wijngaarden E et al, (April 2000) Exposure to electromagnetic fields and suicide among electric utility workers: a nested case-control study, Occup Environ Med. 2000 Apr;57(4):258-63	"Suicide mortality was increased relative to work in exposed jobs and with indices of exposure to magnetic fields. Increased odds ratios (ORs) were found for years of employment as an electrician (OR 2.18; 95% confidence interval (95% CI) 1.25 to 3.80) or lineman (OR 1.59; 95% CI 1.18 to 2.14), whereas a decreased OR was found for power plant operators (OR 0.67; 95% CI 0.33 to 1.40). A dose response gradient with exposure to magnetic fields was found for exposure in the previous year, with a mortality OR of 1.70 (95% CI 1.00 to 2.90) in the highest exposure category. Stronger associations, with ORs in the range of 2.12-3.62, were found for men <50 years of age. These data provide evidence for an association between occupational electromagnetic fields and suicide that warrants further evaluation. A plausible mechanism related to melatonin and depression provides a direction for additional laboratory research as well as epidemiological evaluation"	<a href="https://pubmed.ncbi.nlm.nih.gov/10810112/">https://pubmed.ncbi.nlm.nih.gov/10810112/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>

## EEG AND BRAIN RESPONSE

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
11.	Koivisto M et al, (June 2000) The effects of electromagnetic field emitted by GSM phones on working memory, Neuroreport. 2000 Jun 5;11(8):1641-3	"The RF field speeded up response times when the memory load was three items but no effects of RF were observed with lower loads. The results suggest that RF fields have a measurable effect on human cognitive performance and encourage further studies on the interactions of RF fields with brain function"	<a href="https://pubmed.ncbi.nlm.nih.gov/10852216/">https://pubmed.ncbi.nlm.nih.gov/10852216/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
12.	Krause CM et al, (March 2000) Effects of electromagnetic field emitted by cellular phones on the EEG during a memory task, Neuroreport. 2000 Mar 20;11(4):761-4	"Nonetheless, the presence of EMF altered the ERD/ERS responses in all studied frequency bands as a function of time and memory task (encoding vs retrieval). Our results suggest that the exposure to EMF does not alter the resting EEG per se but modifies the brain responses significantly during a memory task"	<a href="https://pubmed.ncbi.nlm.nih.gov/10757515/">https://pubmed.ncbi.nlm.nih.gov/10757515/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
13.	Hocking B, Westerman R, (March 2003) Neurological effects of radiofrequency radiation, Occup Med 2003 Mar;53(2):123-7	"After very high exposures, nerves may be grossly injured. After lower exposures, which may result in dysaesthesia, ordinary nerve conduction studies find no abnormality but current perception threshold studies have found abnormalities. Some of these observations are not consistent with the prevailing hypothesis that all health effects of RFR arise from thermal mechanisms."	<a href="https://pubmed.ncbi.nlm.nih.gov/12637597/">https://pubmed.ncbi.nlm.nih.gov/12637597/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
82.	Residential proximity to power lines and risk of brain tumor in the general population. <i>epidem.</i> By: Carles C, Esquirol Y, Turuban M, Piel C, Migault L, Pouchieu C, Bouvier G, Fabbro-Peray P, Lebaillly P, Baldi I. Published in: <i>Environ Res</i> 2020; 185: 109473 Journal PubMed doi:10.1016/j.envres.2020.109473	“The authors concluded that the results suggest that the risk of brain tumor, and particularly gliomas could be associated with residential extremely low frequency magnetic field exposure estimated by proximity of power lines.”	<a href="https://pubmed.ncbi.nlm.nih.gov/32278161/">https://pubmed.ncbi.nlm.nih.gov/32278161/</a>	<a href="https://www.emf-portal.org/en/article/42225">https://www.emf-portal.org/en/article/42225</a>
83.	Case-control study on occupational exposure to extremely low-frequency electromagnetic fields and glioma risk. <i>epidem.</i> By: Carlberg M, Koppel T, Ahonen M, Hardell L. Published in: <i>Am J Ind Med</i> 2017; 60 (5): 494-503	“a significant increased risk for the glioma subtype astrocytoma grade IV (glioblastoma multiforme) was observed with cumulative exposure in the time window 1-14 years before diagnosis	<a href="https://pubmed.ncbi.nlm.nih.gov/28394434/">https://pubmed.ncbi.nlm.nih.gov/28394434/</a>	<a href="https://www.emf-portal.org/en/article/31666">https://www.emf-portal.org/en/article/31666</a>
84.	Meta-analysis of extremely low frequency electromagnetic fields and cancer risk: a pooled analysis of epidemiologic studies. <i>epidem.</i> By: Zhang Y, Lai J, Ruan G, Chen C, Wang DW Published in: <i>Environ Int</i> 2016; 88: 36-43	“In conclusion the meta-analysis suggests that exposure to extremely low frequency magnetic fields is associated with cancer risk, mainly in the United States and in residential exposed populations.”	<a href="https://pubmed.ncbi.nlm.nih.gov/26703095/">https://pubmed.ncbi.nlm.nih.gov/26703095/</a>	<a href="https://www.emf-portal.org/en/article/28509">https://www.emf-portal.org/en/article/28509</a>
85.	Occupational exposure to extremely low frequency magnetic fields and brain tumour risks in the INTEROCC study. <i>epidem.</i> By: Turner MC, Benke G, Bowman JD, Figuerola J, Fleming S, Hours M, Kincl L, Krewski D, McLean D, Parent ME, Richardson L, Sadetzki S, Schlaefel K, Schlehofer B, Schüz J, Siemiatycki J, van Tongeren M, Cardis E Published in: <i>Cancer Epidemiol Biomarkers Prev</i> 2014; 23 (9): 1863-1872	“The authors concluded that the results showed an association between occupational exposure to extremely low frequency magnetic fields in the recent past [1 to 4 years before the diagnosis date] and glioma. Occupational exposure to extremely low frequency magnetic fields may play a role in the later stages (promotion and progression) of brain tumorigenesis.”	<a href="https://pubmed.ncbi.nlm.nih.gov/24935666/">https://pubmed.ncbi.nlm.nih.gov/24935666/</a>	<a href="https://www.emf-portal.org/en/article/25164">https://www.emf-portal.org/en/article/25164</a>
86.	Occupational extremely low-frequency magnetic field exposure and selected cancer outcomes in a prospective Dutch cohort. <i>epidem.</i>	“Cumulative exposure to ELF-MF (group 8) showed a significant, positive association with follicular lymphoma but not acute myeloid	<a href="https://pubmed.ncbi.nlm.nih.gov/24241907/">https://pubmed.ncbi.nlm.nih.gov/24241907/</a>	<a href="https://www.emf-portal.org/en/article/23889">https://www.emf-portal.org/en/article/23889</a>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
	By: Koeman T, van den Brandt PA, Slottje P, Schouten LJ, Goldbohm RA, Kromhout H, Vermeulen R Published in: Cancer Causes Control 2014; 25 (2): 203-214	leukemia among men. The authors concluded that found some indications of an increased risk of acute myeloid leukemia and follicular lymphoma among men were found with occupational ELF-MF exposure.”		
87.	Elevated residential exposure to power frequency magnetic field associated with greater average age at diagnosis for patients with brain tumors. epidem. By: Li CY, Lin RS, Sung FC Published in: Bioelectromagnetics 2003; 24 (3): 218-221	“We noted an association between magnetic field exposure and a greater mean age at diagnosis for brain tumors. Whether or not these phenomena suggest a delayed occurrence of brain tumors following a higher than background residential magnetic field exposure deserves further investigation.”	<a href="https://pubmed.ncbi.nlm.nih.gov/12669307/">https://pubmed.ncbi.nlm.nih.gov/12669307/</a>	<a href="https://www.emf-portal.org/en/article/9790">https://www.emf-portal.org/en/article/9790</a>
88.	Brain cancer and occupational exposure to magnetic fields among men: results from a Canadian population-based case-control study. epidem. By: Villeneuve PJ, Agnew DA, Johnson KC, Mao Y Published in: Int J Epidemiol 2002; 31 (1): 210-217	“Our findings support the hypothesis that occupational magnetic field exposure increases the risk of glioblastoma multiforme.”	<a href="https://pubmed.ncbi.nlm.nih.gov/11914323/">https://pubmed.ncbi.nlm.nih.gov/11914323/</a>	<a href="https://www.emf-portal.org/en/article/9115">https://www.emf-portal.org/en/article/9115</a>
89.	Cancer incidence and magnetic field exposure in industries using resistance welding in Sweden. epidem. By: Hakansson N, Floderus B, Gustavsson P, Johansen C, Olsen J Published in: Occup Environ Med 2002; 59 (7): 481-486	“Men in the very high exposure group showed an increased incidence of tumours of the kidney, pituitary gland, and biliary passages and liver; for these cancer sites an exposure-response relation was indicated. Women in the very high exposure group showed an increased incidence of astrocytoma I-IV, with a clear exposure-response pattern.”	<a href="https://pubmed.ncbi.nlm.nih.gov/12107298/">https://pubmed.ncbi.nlm.nih.gov/12107298/</a>	<a href="https://www.emf-portal.org/en/article/9025">https://www.emf-portal.org/en/article/9025</a>
90.	Ionizing radiation, cellular telephones and the risk for brain tumours. epidem. By: Hardell L, Hansson Mild K, Pahlson A, Hallquist A Published in: Eur J Cancer Prev 2001; 10 (6): 523-529	“An increased risk for brain tumor was found for ipsilateral use of mobile phone in the anatomic area with highest microwave dose.”	<a href="https://pubmed.ncbi.nlm.nih.gov/11916351/">https://pubmed.ncbi.nlm.nih.gov/11916351/</a>	<a href="https://www.emf-portal.org/en/article/9009">https://www.emf-portal.org/en/article/9009</a>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
91.	Case-control study on radiology work, medical x-ray investigations, and use of cellular telephones as risk factors for brain tumors. epidem. By: Hardell L, Nasman A, Pahlson A, Hallquist A Published in: MedGenMed 2000; 2 (2): E2	"An increased risk for brain tumor was found for ipsilateral use of cellular phone in the anatomic area with highest microwave dose."	<a href="https://www.medscape.com/viewarticle/408055">https://www.medscape.com/viewarticle/408055</a>	<a href="https://www.emf-portal.org/en/article/6110">https://www.emf-portal.org/en/article/6110</a>
92.	Occupational magnetic field exposure and site-specific cancer incidence: a Swedish cohort study. epidem. By: Floderus B, Stenlund C, Persson T Published in: Cancer Causes Control 1999; 10 (5): 323-332	"Several types of cancer were associated with exposure among men, including cancer of the colon, biliary passages and liver, larynx and lung, testis, kidney, urinary organs, malignant melanoma, non-melanoma skin cancer, astrocytoma III-IV. For women, associations were seen for cancer of the lung, breast, corpus uteri, malignant melanoma and chronic lymphocytic leukemia."	<a href="https://pubmed.ncbi.nlm.nih.gov/10530600/">https://pubmed.ncbi.nlm.nih.gov/10530600/</a>	<a href="https://www.emf-portal.org/en/article/1060">https://www.emf-portal.org/en/article/1060</a>
93.	Occupational exposure to magnetic fields and brain tumours in central Sweden. epidem. By: Rodvall Y, Ahlbom A, Stenlund C, Preston-Martin S, Lindh T, Spannare B Published in: Eur J Epidemiol 1998; 14 (6): 563-569	"Our conclusion is that the results based on magnetic field measurements give some support to the hypothesis that magnetic fields exposure may play a role in the development of brain tumors."	<a href="https://pubmed.ncbi.nlm.nih.gov/9794123/">https://pubmed.ncbi.nlm.nih.gov/9794123/</a>	<a href="https://www.emf-portal.org/en/article/1059">https://www.emf-portal.org/en/article/1059</a>
94.	Effects of the analytical treatment of exposure data on associations of cancer and occupational magnetic field exposure. epidem. By: Loomis A, Kromhout H, Kleckner RC, Savitz DA Published in: Am J Ind Med 1998; 34 (1): 49-56	"For brain cancer, increasing cumulative magnetic field exposure was associated with increasing mortality in virtually all models, with rate ratios between 1.3-3.4 for the most exposed workers. These rate ratios are consistent with previous analyses suggesting a 1.5-3.0-fold increase in the risk of brain cancer but no association with leukemia, and confirm that the previous results are not dependent on	<a href="https://pubmed.ncbi.nlm.nih.gov/9617387/">https://pubmed.ncbi.nlm.nih.gov/9617387/</a>	<a href="https://www.emf-portal.org/en/article/966">https://www.emf-portal.org/en/article/966</a>



## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		arbitrary decisions in applying the exposure data.		
95.	Occupational and residential magnetic field exposure and leukemia and central nervous system tumors. epidem. By: Feychting M, Forssen U, Floderus B Published in: Epidemiology 1997; 8 (4): 384-389	“These results provide support for an association between magnetic field exposure and leukemia. Relative risks for nervous system tumors were close to unity.”	<a href="https://pubmed.ncbi.nlm.nih.gov/9209851/">https://pubmed.ncbi.nlm.nih.gov/9209851/</a>	<a href="https://www.emf-portal.org/en/article/1911">https://www.emf-portal.org/en/article/1911</a>
96.	Exposure to 50-Hz electric field and incidence of leukemia, brain tumors, and other cancers among French electric utility workers. epidem. By: Guenel P, Nicolau J, Imbernon E, Chevalier A, Goldberg M Published in: Am J Epidemiol 1996; 144 (12): 1107-1121	“Our study indicates that electric fields may have a specific effect on the risk of brain tumor, and that this should be taken into account in future analyses on the carcinogenic effects of 50- to 60-Hz fields.”	<a href="https://pubmed.ncbi.nlm.nih.gov/8956623/">https://pubmed.ncbi.nlm.nih.gov/8956623/</a>	<a href="https://www.emf-portal.org/en/article/3456">https://www.emf-portal.org/en/article/3456</a>
97.	The 2100 MHz radiofrequency radiation of a 3G-mobile phone and the DNA oxidative damage in brain Author links open overlay panelDuyguSahinaElcinOzgurbGoknurGulerbArinTomrukblhanUnlucAylinSepici-DinçeldNesrinSeyhan, 2016	“Our main finding was the increased oxidative DNA damage to brain after 10 days of exposure with the decreased oxidative DNA damage following 40 days of exposure compared to their control groups. Besides decreased lipid peroxidation end product, MDA, was observed after 40 days of exposure.”	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0891061816000041">https://www.sciencedirect.com/science/article/abs/pii/S0891061816000041</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a>
98.	Mobile phone and cordless phone use and the risk for glioma – Analysis of pooled case-control studies in Sweden, 1997–2003 and 2007–2009 Author links open overlay panelLennartHardellMichaelCarlberg, 2015	“The highest risk was found for glioma in the temporal lobe. First use of mobile or cordless phone before the age of 20 gave higher OR for glioma than in later age groups.”	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0928468014000649?via%3Dihub">https://www.sciencedirect.com/science/article/abs/pii/S0928468014000649?via%3Dihub</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
99.	<p>Mobile phone radiation causes brain tumors and should be classified as a probable human carcinogen (2A) (Review) February 2015 International Journal of Oncology 46(5)</p>	<p>“We conclude that radiofrequency fields should be classified as a Group 2A probable human carcinogen under the criteria used by the International Agency for Research on Cancer (Lyon, France). Additional data should be gathered on exposures to mobile and cordless phones, other WTDs, mobile phone base stations and Wi-Fi routers to evaluate their impact on public health. We advise that the as low as reasonable achievable (ALARA) principle be adopted for uses of this technology, while a major cross-disciplinary effort is generated to train researchers in bioelectromagnetics and provide monitoring of potential health impacts of RF-EMF.”</p>	<p><a href="https://www.researchgate.net/publication/273150433_Mobile_phone_radiation_causes_brain_tumors_and_should_be_classified_as_a_probable_human_carcinogen_2A_Review">https://www.researchgate.net/publication/273150433_Mobile_phone_radiation_causes_brain_tumors_and_should_be_classified_as_a_probable_human_carcinogen_2A_Review</a></p>	<p><a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a></p>
100.	<p>Estimating the risk of brain tumors from cellphone use: Published case-control studies L Lloyd Morgan 1, 2009</p>	<p>“This paper reviews the results of early cellphone studies, where exposure duration was too short to expect tumorigenesis, as well as two sets of more recent studies with longer exposure duration: the Interphone studies and the Swedish studies led by Dr. Lennart Hardell. The recent studies reach very different conclusions. With four exceptions the industry-funded Interphone studies found no increased risk of brain tumors from cellphone use, while the Swedish studies, independent of industry funding, reported numerous findings of significant increased brain tumor risk from cellphone and cordless phone use. An analysis of the data from the Interphone studies suggests that either the use of a cellphone protects the user from a brain tumor, or the studies had</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/19356911/">https://pubmed.ncbi.nlm.nih.gov/19356911/</a></p>	<p><a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a></p>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		serious design flaws. Eleven flaws are identified: (1) selection bias, (2) insufficient latency time, (3) definition of 'regular' cellphone user, (4) exclusion of young adults and children, (5) brain tumor risk from cellphones radiating higher power levels in rural areas were not investigated, (6) exposure to other transmitting sources are excluded, (7) exclusion of brain tumor types, (8) tumors outside the cellphone radiation plume are treated as exposed, (9) exclusion of brain tumor cases because of death or illness, (10) recall accuracy of cellphone use, and (11) funding bias. The Interphone studies have all 11 flaws, and the Swedish studies have 3 flaws (8, 9 and 10). The data from the Swedish studies are consistent with what would be expected if cellphone use were a risk for brain tumors, while the Interphone studies data are incredulous. If a risk does exist, the public health cost will be large. These are the circumstances where application of the Precautionary Principle is indicated, especially if low-cost options could reduce the absorbed cellphone radiation by several orders of magnitude.”		
101.	Mobile phones and head tumours. The discrepancies in cause-effect relationships in the epidemiological studies - how do they arise? Angelo G Levis 1, Nadia Minicuci, Paolo Ricci, Valerio Gennaro, Spiridione Garbisa, 2011	“Blind protocols, free from errors, bias, and financial conditioning factors, give positive results that reveal a cause-effect relationship between long-term mobile phone use or latency and statistically significant increase of ipsilateral head tumour risk, with biological plausibility. Non-blind protocols, which instead are affected by errors, bias, and financial conditioning	<a href="https://pubmed.ncbi.nlm.nih.gov/21679472/">https://pubmed.ncbi.nlm.nih.gov/21679472/</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a>

## BRAIN CANCER

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		<p>factors, give negative results with systematic underestimate of such risk. However, also in these studies a statistically significant increase in risk of ipsilateral head tumours is quite common after more than 10 years of mobile phone use or latency. The meta-analyses, our included, examining only data on ipsilateral tumours in subjects using mobile phones since or for at least 10 years, show large and statistically significant increases in risk of ipsilateral brain gliomas and acoustic neuromas.</p> <p>Conclusions: Our analysis of the literature studies and of the results from meta-analyses of the significant data alone shows an almost doubling of the risk of head tumours induced by long-term mobile phone use or latency.”</p>		
102.	<p>Cell phones and brain tumors: a review including the long-term epidemiologic data Vini G Khurana 1, Charles Teo, Michael Kundi, Lennart Hardell, Michael Carlberg, 2009</p>	<p>“The results indicate that using a cell phone for &gt; or = 10 years approximately doubles the risk of being diagnosed with a brain tumor on the same ("ipsilateral") side of the head as that preferred for cell phone use. The data achieve statistical significance for glioma and acoustic neuroma but not for meningioma.</p> <p>Conclusion: The authors conclude that there is adequate epidemiologic evidence to suggest a link between prolonged cell phone usage and the development of an ipsilateral brain tumor.”</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/19328536/">https://pubmed.ncbi.nlm.nih.gov/19328536/</a></p>	<p><a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a></p>
103.	<p>Epidemiological evidence for an association between use of wireless phones and tumor diseases</p>	<p>“In summary our review yielded a consistent pattern of an increased risk for glioma and</p>	<p><a href="https://pubmed.ncbi.nlm.nih.gov/19268551/">https://pubmed.ncbi.nlm.nih.gov/19268551/</a></p>	<p><a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section1</a></p>

<b>BRAIN CANCER</b>				
	<b>STUDY TITLE</b>	<b>CONCLUSION</b>	<b>LINK TO STUDY</b>	<b>LINK TO SUMMARY</b>
	Lennart Hardell 1, Michael Carlberg, Kjell Hansson Mild, 2009	acoustic neuroma after >10 year mobile phone use. We conclude that current standard for exposure to microwaves during mobile phone use is not safe for long-term exposure and needs to be revised.”		<a href="#">4g-5g/science/#section1</a>
104.	Mobile phone use and the risk of acoustic neuroma Stefan Lönn 1, Anders Ahlbom, Per Hall, Maria Feychting, 2004	“Our data suggest an increased risk of acoustic neuroma associated with mobile phone use of at least 10 years' duration.”	<a href="https://pubmed.ncbi.nlm.nih.gov/15475713/">https://pubmed.ncbi.nlm.nih.gov/15475713/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>

<b>PARTOTID GLAND TUMORS</b>				
	<b>STUDY TITLE</b>	<b>CONCLUSION</b>	<b>LINK TO STUDY</b>	<b>LINK TO SUMMARY</b>
105.	Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones Lennart Hardell, Michael Carlberg, 2013	“Based on the Hill criteria, glioma and acoustic neuroma should be considered to be caused by RF-EMF emissions from wireless phones and regarded as carcinogenic to humans, classifying it as group 1 according to the IARC classification. Current guidelines for exposure need to be urgently revised.”	<a href="https://pubmed.ncbi.nlm.nih.gov/24192496/">https://pubmed.ncbi.nlm.nih.gov/24192496/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>
106.	Pooled analysis of case-control studies on acoustic neuroma diagnosed 1997-2003 and 2007-2009 and use of mobile and cordless phones Lennart Hardell 1, Michael Carlberg, Fredrik Söderqvist, Kjell Hansson Mild, 2013	“The percentage tumour volume increased per year of latency and per 100 h of cumulative use, statistically significant for analogue phones. This study confirmed previous results demonstrating an association between mobile and cordless phone use and acoustic neuroma.”	<a href="https://pubmed.ncbi.nlm.nih.gov/23877578/">https://pubmed.ncbi.nlm.nih.gov/23877578/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>

## PARTOTID GLAND TUMORS

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
107.	Correlation between cellular phone use and epithelial parotid gland malignancies Y Duan 1, H Z Zhang, R F Bu, 2011	“The results suggest a possible dose-response relationship of cellular phone use with epithelial parotid gland malignancy. The authors suggest that the association of cellular phone use and epithelial parotid gland malignancy and mucoepidermoid carcinoma requires further investigation with large prospective studies.”	<a href="https://pubmed.ncbi.nlm.nih.gov/21474287/">https://pubmed.ncbi.nlm.nih.gov/21474287/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>
108.	Mobile phone use and risk of tumors: a meta-analysis Seung-Kwon Myung 1, Woong Ju, Diana D McDonnell, Yeon Ji Lee, Gene Kazinets, Chih-Tao Cheng, Joel M Moskowitz, 2009	“The current study found that there is possible evidence linking mobile phone use to an increased risk of tumors from a meta-analysis of low-biased case-control studies. Prospective cohort studies providing a higher level of evidence are needed.”	<a href="https://pubmed.ncbi.nlm.nih.gov/19826127/">https://pubmed.ncbi.nlm.nih.gov/19826127/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>
109.	Mobile phones, cordless phones and the risk for brain tumours Lennart Hardell 1, Michael Carlberg, 2009	“In summary, we report a consistent association between use of mobile or cordless phones and astrocytoma grade I-IV and acoustic neuroma. The risk is highest for ipsilateral exposure to microwaves using >10 year latency period. We found an especially high risk for persons that started use of mobile or cordless phones before the age of 20 years	<a href="https://www.spandidos-publications.com/ijo/35/1/5">https://www.spandidos-publications.com/ijo/35/1/5</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>
110.	Public health implications of wireless technologies Cindy Sage 1, David O Carpenter, 2009	“New, biologically based public exposure standards for chronic exposure to low-intensity exposures are warranted. Existing safety standards are obsolete because they are based solely on thermal effects from acute exposures. The rapidly expanding development of new wireless technologies and the long latency for the development of such serious diseases as	<a href="https://pubmed.ncbi.nlm.nih.gov/19285839/">https://pubmed.ncbi.nlm.nih.gov/19285839/</a>	<a href="https://scientists4wire.com/what-are-4g-5g/science/#section1">https://scientists4wire.com/what-are-4g-5g/science/#section1</a>

## PARTOTID GLAND TUMORS

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		brain cancers means that failure to take immediate action to reduce risks may result in an epidemic of potentially fatal diseases in the future. Regardless of whether or not the associations are causal, the strengths of the associations are sufficiently strong that in the opinion of the authors, taking action to reduce exposures is imperative, especially for the fetus and children.”		
111.	Epidemiological evidence for an association between use of wireless phones and tumor diseases Author links open overlay panel Lennart Hardella Michael Carlberg Kjell Hansson Mildb, 2009	“In summary our review yielded a consistent pattern of an increased risk for glioma and acoustic neuroma after >10 year mobile phone use. We conclude that current standard for exposure to microwaves during mobile phone use is not safe for long-term exposure and needs to be revised.”	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0928468009000091">https://www.sciencedirect.com/science/article/abs/pii/S0928468009000091</a>	<a href="https://scientists4wiretech.com/what-are-4g-5g/science/#section1">https://scientists4wiretech.com/what-are-4g-5g/science/#section1</a>
112.	Cellular Phone Use and Risk of Benign and Malignant Parotid Gland Tumors—A Nationwide Case-Control Study Siegal Sadetzki, Angela Chetrit, Avital Jarus-Hakak, Elisabeth Cardis, Yonit Deutch, Shay Duvdevani, Ahuva Zultan, Ilya Novikov, Laurence Freedman, Michael Wolf American Journal of Epidemiology, Volume 167, Issue 4, 15 February 2008, Pages 457–467	“A positive dose-response trend was found for these measurements. Based on the largest number of benign PGT patients reported to date, our results suggest an association between cellular phone use and PGTs.”	<a href="https://academic.oup.com/aje/article/167/4/457/233171">https://academic.oup.com/aje/article/167/4/457/233171</a>	<a href="https://scientists4wiretech.com/what-are-4g-5g/science/#section1">https://scientists4wiretech.com/what-are-4g-5g/science/#section1</a>

## OTHER MALIGNANCIES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
113.	Meta-analysis of extremely low frequency electromagnetic fields and cancer risk: a pooled analysis of epidemiologic studies. Zhang Y, Lai J, Ruan G, Chen C, Wang DW. Published in: Environ Int 2016; 88: 36-43	“The meta-analysis suggests that exposure to extremely low frequency magnetic fields is associated with cancer risk, mainly in the United States and in residential exposed populations.”	<a href="https://pubmed.ncbi.nlm.nih.gov/26703095/">https://pubmed.ncbi.nlm.nih.gov/26703095/</a>	<a href="https://www.emf-portal.org/en/article/28509">https://www.emf-portal.org/en/article/28509</a>
114.	Adult mortality from leukemia, brain cancer, amyotrophic lateral sclerosis and magnetic fields from power lines: a case-control study in Brazil. epidem. By: Marcilio I, Gouveia N, Pereira Filho ML, Kheifets L. Published in: Rev Bras Epidemiol 2011; 14 (4): 580-588	“The authors conclude that their findings are suggestive of a higher risk for leukemia among subjects living closer to transmission lines, and for those living at homes with higher calculated magnetic fields, although the risk was limited to voltage lines < 200 kV.”	<a href="https://www.scielo.br/pdf/rbepid/v14n4/05.pdf">https://www.scielo.br/pdf/rbepid/v14n4/05.pdf</a>	<a href="https://www.emf-portal.org/en/article/20080">https://www.emf-portal.org/en/article/20080</a>
115.	Morbidity experience in populations residentially exposed to 50 Hz magnetic fields: methodology and preliminary findings of a cohort study. epidem. By: Fazzo L, Tancioni V, Polichetti A, Iavarone I, Vanacore N, Papini P, Farchi S, Bruno C, Pasetto R, Borgia P, Comba P. Published in: Int J Occup Environ Health 2009; 15 (2): 133-142	“A significant increase for primary cancers (n=10) were observed among subjects living for more than 30 years close to a power line. A significant increase for all neoplasms (n=16), primary cancers and secondary cancers as well for ischaemic diseases (n=6) were found among residents of sub-area A with the highest exposure.”	<a href="https://pubmed.ncbi.nlm.nih.gov/19496479/">https://pubmed.ncbi.nlm.nih.gov/19496479/</a>	<a href="https://www.emf-portal.org/en/article/17171">https://www.emf-portal.org/en/article/17171</a>
116.	Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans Author links open overlay panel Alexander Lerchla Melanie Klose Karen Grotea Adalbert	“Tumor-promoting effects of RF-EMF exposed mice have been reported in 2010. We have replicated the study with higher numbers of mice per group. We could not fully confirm the previous results, thus the effects are reproducible.”	<a href="https://www.sciencedirect.com/science/article/abs/pii/S0006291X15003988">https://www.sciencedirect.com/science/article/abs/pii/S0006291X15003988</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4</a>



## OTHER MALIGNANCIES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
	F.X.WilhelmbOliverSpathmanncThomasFiedlerc1JoachimStreckertcVolkertHansencMarkusClemensc, 2015	Numbers of tumors of the lungs and livers in exposed animals were significantly higher than in sham-exposed controls. In addition, lymphomas were also found to be significantly elevated by exposure. We hypothesize that these tumor-promoting effects may be caused by metabolic changes due to exposure. Since many of the tumor-promoting effects in our study were seen at low to moderate exposure levels (0.04 and 0.4 W/kg SAR), thus well below exposure limits for the users of mobile phones, further studies are warranted to investigate the underlying mechanisms. Our findings may help to understand the repeatedly reported increased incidences of brain tumors in heavy users of mobile phones.		
117.	Swedish review strengthens grounds for concluding that radiation from cellular and cordless phones is a probable human carcinogen Devra Lee Davis 1, Santosh Kesari, Colin L Soskolne, Anthony B Miller, Yael Stein, 2013	[Abstract:] “In 2011, the World Health Organization, International Agency for Research on Cancer (IARC) advised that electromagnetic radiation from mobile phone and other wireless devices constitutes a "possible human carcinogen," 2B. Recent analyses not considered in the IARC review that take into account these methodological shortcomings from a number of authors find that brain tumor risk is significantly elevated for those who have used mobile phones for at least a decade. Studies carried out in Sweden indicate that those who begin using either cordless or mobile phones regularly	<a href="https://pubmed.ncbi.nlm.nih.gov/23664410/">https://pubmed.ncbi.nlm.nih.gov/23664410/</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4</a>

## OTHER MALIGNANCIES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		<p>before age 20 have greater than a fourfold increased risk of ipsilateral glioma. Given that treatment for a single case of brain cancer can cost between \$100,000 for radiation therapy alone and up to \$1 million depending on drug costs, resources to address this illness are already in short supply and not universally available in either developing or developed countries. Significant additional shortages in oncology services are expected at the current growth of cancer. No other environmental carcinogen has produced evidence of an increased risk in just one decade. Empirical data have shown a difference in the dielectric properties of tissues as a function of age, mostly due to the higher water content in children's tissues. High resolution computerized models based on human imaging data suggest that children are indeed more susceptible to the effects of EMF exposure at microwave frequencies. ... Many nations, phone manufacturers, and expert groups, advise prevention in light of these concerns by taking the simple precaution of "distance" to minimize exposures to the brain and body. We note that brain cancer is the proverbial "tip of the iceberg"; the rest of the body is also showing effects other than cancers."</p>		
118.	Multifocal Breast Cancer in Young Women with Prolonged Contact between Their Breasts and Their Cellular Phones	<p>"The effect of EMR on tissues is directly related to the distance between the body and the source. ... [I]t has been demonstrated that the</p>	<p><a href="https://www.hindawi.com/journals/crim/2013/354682/">https://www.hindawi.com/journals/crim/2013/354682/</a></p>	<p><a href="https://scientists4wiretech.com/what-are-4682/">https://scientists4wiretech.com/what-are-4682/</a></p>

## OTHER MALIGNANCIES

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
	John G. West, <sup>1</sup> Nimmi S. Kapoor, <sup>1</sup> Shu-Yuan Liao, <sup>2</sup> June W. Chen, <sup>3</sup> Lisa Bailey, <sup>4</sup> and Robert A. Nagourney <sup>5</sup> , 2013	effect of EMR on children can be several times higher than that of adults. It is possible that the growing, dividing breast tissue that occurs during puberty may be particularly vulnerable to cellular phone EMR..."		4g-5g/science/#section4
119.	Epidemiological evidence for an association between use of wireless phones and tumor diseases Lennart Hardell <sup>1</sup> , Michael Carlberg, Kjell Hansson Mild, 2009	"In summary our review yielded a consistent pattern of an increased risk for glioma and acoustic neuroma after >10 year mobile phone use. We conclude that current standard for exposure to microwaves during mobile phone use is not safe for long-term exposure and needs to be revised."	<a href="https://pubmed.ncbi.nlm.nih.gov/19268551/">https://pubmed.ncbi.nlm.nih.gov/19268551/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section4">https://scientists4wiredtech.com/what-are-4g-5g/science/#section4</a>
120.	Study on potential effects of "902-MHz GSM-type Wireless Communication Signals" on DMBA-induced mammary tumours in Sprague-Dawley rats Robert Hruby <sup>1</sup> , Georg Neubauer, Niels Kuster, Michael Frauscher, 2008	"There were several statistically significant differences between RF-exposed groups and the sham-exposed group, as follows: All RF-exposed groups had, at different times, significantly more palpable tissue masses. There were fewer animals with benign neoplasms, but more with malignant tumours in the high-dose group. In addition, there were more adenocarcinomas in the low-dose group, more malignant neoplasms in the low- and high-dose groups, more animals with adenocarcinomas in the high-dose group, and fewer animals with fibroadenomas in the low- and mid-dose groups."	<a href="https://pubmed.ncbi.nlm.nih.gov/17981079/">https://pubmed.ncbi.nlm.nih.gov/17981079/</a>	<a href="https://scientists4wiredtech.com/what-are-4g-5g/science/#section4">https://scientists4wiredtech.com/what-are-4g-5g/science/#section4</a>

## EFFECTS ON DNA

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
121.	Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells More Strongly Than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk Eva Marková,1,2 Lars O.G. Malmgren,3 and Igor Y. Belyaev, 2010	“The strongest microwave effects were always observed in stem cells. This result may suggest both significant misbalance in DSB repair and severe stress response. Our findings that stem cells are most sensitive to microwave exposure and react to more frequencies than do differentiated cells may be important for cancer risk assessment and indicate that stem cells are the most relevant cellular model for validating safe mobile communication signals.”	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854769/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854769/</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4</a>
122.	Increased blood-brain barrier permeability in mammalian brain 7 days after exposure to the radiation from a GSM-900 mobile phone Henrietta Nittby 1, Arne Brun, Jacob Eberhardt, Lars Malmgren, Bertil R R Persson, Leif G Salford, 2009	“Our group has earlier shown that the electromagnetic radiation emitted by mobile phones alters the permeability of the blood-brain barrier (BBB), resulting in albumin extravasation immediately and 14 days after 2h of exposure. ... The present findings are in agreement with our earlier studies where we have seen increased BBB permeability immediately and 14 days after exposure.”	<a href="https://pubmed.ncbi.nlm.nih.gov/19345073/">https://pubmed.ncbi.nlm.nih.gov/19345073/</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4</a>
123.	Effects of GSM 1800 MHz on dendritic development of cultured hippocampal neurons Wei Ning 1, Shu-jun Xu, Huai Chiang, Zheng-ping Xu, Su-ya Zhou, Wei Yang, Jian-hong Luo, 2007	“These data indicate that the chronic exposure to 2.4 W/kg GSM 1800 MHz microwaves during the early developmental stage may affect dendritic development and the formation of excitatory synapses of hippocampal neurons in culture.”	<a href="https://pubmed.ncbi.nlm.nih.gov/18031599/">https://pubmed.ncbi.nlm.nih.gov/18031599/</a>	<a href="https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4">https://scientists4wire.dtech.com/what-are-4g-5g/science/#section4</a>

## ELECTROMAGNETIC SENSITIVITY

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
124	Could myelin damage from radiofrequency electromagnetic field exposure help explain the functional impairment electrohypersensitivity? A review of the evidence, J Toxicol Environ Health B Crit Rev. 2014;17(5):247-58. doi: 10.1080/10937404.2014.923356. Redmayne M, Johansson O, (September 2014)	"Overall, evidence from in vivo and in vitro and epidemiological studies suggests an association between RF-EMF exposure and either myelin deterioration or a direct impact on neuronal conduction, which may account for many electrohypersensitivity symptoms. The most vulnerable are likely to be those in utero through to at least mid-teen years, as well as ill and elderly individuals."	<a href="https://pubmed.ncbi.nlm.nih.gov/25205214/">https://pubmed.ncbi.nlm.nih.gov/25205214/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
125	Electromagnetic hypersensitivity: evidence for a novel neurological syndrome, Int J Neurosci. 2011 Dec;121(12):670-6. Epub 2011 Sep 5. McCarty DE et al, (December 2011)	"The subject demonstrated statistically reliable somatic reactions in response to exposure to subliminal EMFs under conditions that reasonably excluded a causative role for psychological processes. EMF hypersensitivity can occur as a bona fide environmentally inducible neurological syndrome."	<a href="https://pubmed.ncbi.nlm.nih.gov/21793784/">https://pubmed.ncbi.nlm.nih.gov/21793784/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
126	Cognitive and neurobiological alterations in electromagnetic hypersensitive patients: results of a case-control study, Psychol Med. 2008 Mar 26;1-11. Landgrebe M et al, (March 2008)	"Discrimination ability was significantly reduced in EHS (only 40% of the EHS but 60% of the controls felt no sensation under sham stimulation during the complete series), whereas the perception thresholds for real magnetic pulses were comparable in both groups (median 21% versus 24% of maximum pulse intensity). Intra-cortical facilitation was decreased in younger and increased in older EHS. In addition, typical EMF-related cognitions (aspects of rumination, symptom intolerance, vulnerability and stabilizing self-esteem) specifically differentiated EHS from their controls. These results demonstrate significant cognitive and neurobiological alterations	<a href="https://pubmed.ncbi.nlm.nih.gov/18366821/">https://pubmed.ncbi.nlm.nih.gov/18366821/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>

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	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		pointing to a higher genuine individual vulnerability of electromagnetic hypersensitive patients"		
127.	Neurobehavioral effects among inhabitants around mobile phone base stations, Neurotoxicology. 2007 Mar;28(2):434-40. Abdel-Rassoul G et al, (March 2007)	"Inhabitants living nearby mobile phone base stations are at risk for developing neuropsychiatric problems and some changes in the performance of neurobehavioral functions either by facilitation or inhibition. So, revision of standard guidelines for public exposure to RER from mobile phone base station antennas and using of NBTB for regular assessment and early detection of biological effects among inhabitants around the stations are recommended."	<a href="https://pubmed.ncbi.nlm.nih.gov/16962663/">https://pubmed.ncbi.nlm.nih.gov/16962663/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
128.	Altered cortical excitability in subjectively electrosensitive patients: results of a pilot study, J Psychosom Res. 2007 Mar;62(3):283-8. Landgrebe M et al, (March 2007)	"Electrosensitive patients showed reduced intracortical facilitation as compared to both control groups, while motor thresholds and intracortical inhibition were unaffected. This pilot study gives additional evidence that altered central nervous system function may account for symptom manifestation in subjectively electrosensitive patients as has been postulated for several chronic multisymptom illnesses sharing a similar clustering of symptoms"	<a href="https://pubmed.ncbi.nlm.nih.gov/17324677/">https://pubmed.ncbi.nlm.nih.gov/17324677/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
129.	Electrohypersensitivity: state-of-the-art of a functional impairment, Electromagn Biol Med. 2006;25(4):245-58. Johansson O, (2006)	"In summary, it is evident from our preliminary data that various alterations are present in the electrohypersensitive person' skin. In view of recent epidemiological studies, pointing to a correlation between long-term exposure from power-frequent magnetic fields or microwaves	<a href="https://pubmed.ncbi.nlm.nih.gov/17178584/">https://pubmed.ncbi.nlm.nih.gov/17178584/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>

## ELECTROMAGNETIC SENSITIVITY

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		and cancer, our data ought to be taken seriously and further analyzed"		
130.	Subjective symptoms reported by people living in the vicinity of cellular phone base stations: review, Med Pr. 2004;55(4):345-51. Bortkiewicz A et al, (2004)	"A questionnaire was used as a study tool. The results of the questionnaire survey reveal that people living in the vicinity of base stations report various complaints mostly of the circulatory system, but also of sleep disturbances, irritability, depression, blurred vision, concentration difficulties, nausea, lack of appetite, headache and vertigo. The performed studies showed the relationship between the incidence of individual symptoms, the level of exposure, and the distance between a residential area and a base station. This association was observed in both groups of persons, those who linked their complaints with the presence of the base station and those who did not notice such a relation. Further studies, clinical and those based on questionnaires, are needed to explain the background of reported complaints"	<a href="https://pubmed.ncbi.nlm.nih.gov/15620045/">https://pubmed.ncbi.nlm.nih.gov/15620045/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#elfemf">https://www.powerwatch.org.uk/science/studies.asp#elfemf</a>
131.	The Microwave Syndrome - Further Aspects of a Spanish Study, Conference Proceedings. Oberfeld G et al, (October 2004)	"The adjusted (sex, age, distance) logistic regression model showed statistically significant positive exposure-response associations between the E-field and the following variables: fatigue, irritability, headaches, nausea, loss of appetite, sleeping disorder, depressive tendency, feeling of discomfort, difficulty in concentration, loss of memory, visual disorder, dizziness and cardiovascular problems. The inclusion of the distance, which might be a proxy	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>

## ELECTROMAGNETIC SENSITIVITY

	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		for the sometimes raised "concerns explanation", did not alter the model substantially."		
132.	Diseases of modern living: neurological changes associated with mobile phones and radiofrequency radiation in humans, Neurosci Lett. 2004 May 6;361(1-3):13-6. Westerman R, Hocking B, (May 2004)	"Some of these observations are not consistent with the prevailing hypothesis that all health effects of RFR arise from thermal mechanisms. It is concluded that RFR from mobile phones can cause peripheral neurophysiological changes in some persons. The effects occur at exposure levels below the present safety levels for RFR. Possible non-thermal mechanisms are discussed and may point to future directions of research"	<a href="https://pubmed.ncbi.nlm.nih.gov/15135881/">https://pubmed.ncbi.nlm.nih.gov/15135881/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
133.	The Microwave Syndrome: A Preliminary Study in Spain, Electromagn Biol Med 22(2-3): 161-169. Navarro EA et al, (December 2003)	"The microwave power density was measured at the respondents' homes. Statistical analysis showed significant correlation between the declared severity of the symptoms and the measured power density. The separation of respondents into two different exposure groups also showed an increase of the declared severity in the group with the higher exposure."	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
134.	Symptoms experienced by people in vicinity of base stations: II/ Incidences of age, duration of exposure, location of subjects in relation to the antennas and other electromagnetic factors, Pathol Biol (Paris). 2003 Sep;51(7):412-5. Santini R et al, (September 2003)	"Our results show significant increase ( $p < 0.05$ ) in relation with age of subjects (elder subjects are more sensitive) and also, that the facing location is the worst position for some symptoms studied, especially for distances till 100 m from base stations."	<a href="https://pubmed.ncbi.nlm.nih.gov/12948762/">https://pubmed.ncbi.nlm.nih.gov/12948762/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
135.	Int J Psychophysiol. 2001 Nov;42(3):233-41, Int J Psychophysiol. 2001 Nov;42(3):233-41. Lyskov E et al, (November 2001)	"They had a higher critical fusion frequency (43 vs. 40 Hz), and a trend to increased amplitude of steady-state VEPs at stimulation frequencies of	<a href="https://pubmed.ncbi.nlm.nih.gov/11812390/">https://pubmed.ncbi.nlm.nih.gov/11812390/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>



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		30-70 Hz. The data indicated that the observed group of patients had a trend to hyper sympathotone, hyperresponsiveness to sensor stimulation and heightened arousal."		
136.	Skin changes in patients claiming to suffer from "screen dermatitis": a two-case open-field provocation study, <i>Exp Dermatol.</i> 1994 Oct;3(5):234-8. Johansson O et al, (October 1994)	"The high number of mast cells present may explain the clinical symptoms of itch, pain, edema and erythema. Naturally, in view of the present public debate, the observed results are highly provocative and, we believe, have to be taken seriously"	<a href="https://pubmed.ncbi.nlm.nih.gov/7881769/">https://pubmed.ncbi.nlm.nih.gov/7881769/</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
137.	Comparison of symptoms experienced by users of analogue and digital mobile phones: a Swedish-Norwegian epidemiological study, <i>Arbetslivsrapport</i> 23: 1998. Haugsdal B et al, (1998)	"Study of mobile phone users showed a statistically significant association between calling time/number of calls per day and the prevalence of warmth behind/around the ear, headaches, and fatigue"	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>	<a href="https://www.powerwatch.org.uk/science/studies.asp#es">https://www.powerwatch.org.uk/science/studies.asp#es</a>
138.	The effect of chronic exposure to extremely low-frequency electromagnetic fields on sleep quality, stress, depression and anxiety. <i>epidem.</i> By: Hosseinabadi MB, Khanjani N, Ebrahimi MH, Haji B, Abdolahfard M. Published in: <i>Electromagn Biol Med</i> 2019; 38 (1): 96-101	"The authors conclude that the results suggest that long-term occupational exposure to extremely low-frequency magnetic fields may lead to depression, stress, anxiety and poor sleep quality."	<a href="https://pubmed.ncbi.nlm.nih.gov/30547710/">https://pubmed.ncbi.nlm.nih.gov/30547710/</a>	<a href="https://www.emf-portal.org/en/article/36927">https://www.emf-portal.org/en/article/36927</a>
139.	Occupational electromagnetic field exposures associated with sleep quality: a cross-sectional study. <i>epidem.</i> By: Liu H, Chen G, Pan Y, Chen Z, Jin W, Sun C, Chen C, Dong X, Chen K, Xu Z, Zhang S, Yu Y. Published in: <i>PLoS One</i> 2014; 9 (10): e110825	"The authors conclude that the results showed an association between daily occupational power frequency magnetic field exposure and poor sleep quality. It implies that power frequency magnetic field exposure may damage human sleep quality rather than sleep duration.	<a href="https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0110825&amp;type=printable">https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0110825&amp;type=printable</a>	<a href="https://www.emf-portal.org/en/article/25890">https://www.emf-portal.org/en/article/25890</a>

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	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
140.	Electromagnetic hypersensitive Finns: Symptoms, perceived sources and treatments, a questionnaire study. epidem. By: Hagström M, Auranen J, Ekman R Published in: Pathophysiology 2013; 20 (2): 117-122	“The authors conclude that according to the present results the official treatment protocols should take better account the EHS person's own experiences. The avoidance of electromagnetic fields effectively removed or lessened the symptoms in EHS persons.”	<a href="https://pubmed.ncbi.nlm.nih.gov/23557856/">https://pubmed.ncbi.nlm.nih.gov/23557856/</a>	<a href="https://www.emf-portal.org/en/article/22047">https://www.emf-portal.org/en/article/22047</a>
141.	Symptoms, personality traits, and stress in people with mobile phone-related symptoms and electromagnetic hypersensitivity Amanda Johansson 1, Steven Nordin, Marina Heiden, Monica Sandström	“Compared to the reference groups the mobile phone group showed increased levels of exhaustion and depression but not of anxiety, somatization, and stress. The EHS group showed increased levels for all conditions except for stress. The authors concluded that there are differences between people with mobile phone related symptoms and people with electromagnetic hypersensitivity with respect to symptoms and anxiety, depression, somatization, exhaustion, and stress.”	<a href="https://pubmed.ncbi.nlm.nih.gov/20004299/">https://pubmed.ncbi.nlm.nih.gov/20004299/</a>	<a href="https://www.emf-portal.org/en/article/17813">https://www.emf-portal.org/en/article/17813</a>
142.	Residential exposure to power frequency magnetic field and sleep disorders among women in an urban community of northern Taiwan. epidem. By: Li CY, Chen PC, Sung FC, Lin RS Published in: Sleep 2002; 25 (4): 428-432	“Although the cross-sectional design precludes the causal inference, our study tends to indicate associations between residential exposure to power frequency magnetic field and sleep initiation and maintenance disorders (SIAMD). We also noted that type-specific SIAMD correlated with different exposure measures.”	<a href="https://pubmed.ncbi.nlm.nih.gov/12071544/">https://pubmed.ncbi.nlm.nih.gov/12071544/</a>	<a href="https://www.emf-portal.org/en/article/8807">https://www.emf-portal.org/en/article/8807</a>
143.	Overhead high-voltage cables and recurrent headache and depressions. epidem. By: Dowson DI, Lewith GT, Campbell M, Mullee MA, Brewster LA Published in: Practitioner 1988; 232 (1447): 435-436	“15 out of 132 participants of the exposed group reported recurrent headache or migraine, compared with 1 of 94 in the control group. 10 participants reporting recurrent headache lived in houses in a distance of 60-80 m to the power line. Analysis revealed that people who are	<a href="https://pubmed.ncbi.nlm.nih.gov/3249722/">https://pubmed.ncbi.nlm.nih.gov/3249722/</a>	<a href="https://www.emf-portal.org/en/article/6454">https://www.emf-portal.org/en/article/6454</a>

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	STUDY TITLE	CONCLUSION	LINK TO STUDY	LINK TO SUMMARY
		younger, live close to a power line and have more days off work are significantly more likely to suffer from headaches or migraines.”		
144.	Work with video display terminals among office employees. I. Subjective symptoms and discomfort. epidem. By: Knave BG, Wibom RI, Voss M, Hedstrom LD, Bergqvist UO. Published in: Scand J Work Environ Health 1985; 11 (6): 457-466	“Eye discomfort, musculoskeletal discomfort, headache, and skin disorders were found to be significantly correlated in the material. The results also indicated that total daily workhours and time spent looking at the VDT screen were related to the degree of discomfort.”	<a href="https://pubmed.ncbi.nlm.nih.gov/4095524/">https://pubmed.ncbi.nlm.nih.gov/4095524/</a>	<a href="https://www.emf-portal.org/en/article/8802">https://www.emf-portal.org/en/article/8802</a>