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Independent Science on the Effect of Wireless Radiation on Human Health
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I. EFFECTS ON FETAL AND NEWBORN DEVELOPMENT

1. **The Effects of Radiofrequency Radiation on Mice Fetus Weight, Length and Tissues.** Alimohammadi, I., et al. *Data in Brief* 19:2189-2194 (2018).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6141437/pdf/main.pdf>
2. **Exposure to Magnetic Field Non-Ionizing Radiation and the Risk of Miscarriage: A prospective Cohort Study.** Li, D., et al. *Scientific Reports* (2017).
<https://www.nature.com/articles/s41598-017-16623-8>
3. **Multiple Assessment Methods of Prenatal Exposure to Radio Frequency Radiation from Telecommunication in the Mothers and Children's Environmental Health (MOCEH) Study.** Choi, KH., et al. *International Journal of Occupational Medicine and Environmental Health* 29(6):959-972 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27869246?dopt=Abstract>
4. **The Use of Signal-Transduction and Metabolic Pathways to Predict Human Disease Targets from Electric and Magnetic Fields Using *in vitro* Data in Human Cell Lines.** Parham, F., et al. *Frontiers in Public Health* (2016).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5013261/>
5. **A Review on Electromagnetic Fields (EMFs) and the Reproductive System.** Asghari, A., et al. *Electronic Physician Journal* 8(7):2655-2662 (2016).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014506/>

6. **Genotoxicity Induced by Foetal and Infant Exposure to Magnetic Fields and Modulation of Ionising Radiation Effects.** Udriou, I., et al. *PLoS One* (2015). <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142259>
7. **Oxidative Stress of Brain and Liver is Increased by Wi-Fi (2.45 GHz) Exposure of Rats During Pregnancy and the Development of Newborns.** Çelik, Ö., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):134-139 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26520617>
8. **Neurodegenerative Changes and Apoptosis Induced by Intrauterine and Extrauterine Exposure of Radiofrequency Radiation.** Güler, G., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):128-133 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26520616>
9. **Maternal Exposure to a Continuous 900-MHz Electromagnetic Field Provokes Neuronal Loss and Pathological Changes in Cerebellum of 32-Day-Old Female Rat Offspring.** Odacı, E., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):105-110 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26391347>
10. **Different Periods of Intrauterine Exposure to Electromagnetic Field: Influence on Female Rats' Fertility, Prenatal and Postnatal Development.** Alchalabi, A., et al. *Asian Pacific Journal of Reproduction* 5(1):14-23 (2015). <https://www.sciencedirect.com/science/article/pii/S2305050015000536>
11. **Use of Mobile Phone During Pregnancy and the Risk of Spontaneous Abortion.** Mahmoudabadi, F., et al. *Journal of Environmental Health Science and Engineering* 13:34 (2015). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416385/>
12. **Oxidative Mechanisms of Biological Activity of Low-Intensity Radiofrequency Radiation.** Yakymenko, I., et al. *Electromagnetic Biology and Medicine* 35(2):186-202 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/26151230>
13. **Effects of Prenatal 900 MHz Electromagnetic Field Exposures on the Histology of Rat Kidney.** Ulubay, M., et al. *International Journal of Radiation Biology* 91(1):35-41 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/25084839>
14. **The Effect of Exposure of Rats During Prenatal Period to Radiation Spreading from Mobile Phones on Renal Development.** Bedir, R., et al. *Renal Failure* 37(2):305-9 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/25691088?dopt=Abstract>

15. **Dosimetric Study of Fetal Exposure to Uniform Magnetic Fields at 50 Hz.** Liorni, I., et al. *Bioelectromagnetics* 35(8):580-97 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/25266786>
16. **Influence of Pregnancy Stage and Fetus Position on the Whole-Body and Local Exposure of the Fetus to RF-EMF.** Varsier, N. et al. *Physics in Medicine and Biology* 59(17):4913-26 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/25098501?dopt=Abstract>
17. **Autism-Relevant Social Abnormalities in Mice Exposed Perinatally to Extremely Low Frequency Electromagnetic Fields.** Alsaeed, I., et al. *International Journal of Developmental Neuroscience* 37:58-6 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/24970316?dopt=Abstract>
18. **Pyramidal Cell Loss in the Cornu Ammonis of 32-day-old Female Rats Following Exposure to a 900 Megahertz Electromagnetic Field During Prenatal Days 13–21.** Bas, O., et al. *NeuroQuantology* 11(4): 591-599 (2013).
<https://neuroquantology.com/index.php/journal/article/viewFile/701/625>
19. **The Effects of 900 Megahertz Electromagnetic Field Applied in the Prenatal Period on Spinal Cord Morphology and Motor Behavior in Female Rat Pups.** Odaci, E., et al. *NeuroQuantology* 11(4): 573-581 (2013).
<https://www.neuroquantology.com/index.php/journal/article/view/698>
20. **Fetal Radiofrequency Radiation Exposure From 800-1900 MHz-Rated Cellular Telephones Affects Neurodevelopment and Behavior in Mice.** Aldad, T., et al. *Science Reports* 2:312 (2012). <https://www.nature.com/articles/srep00312>
21. **Cranial and Postcranial Skeletal Variations Induced in Mouse Embryos by Mobile Phone Radiation.** Fragopoulou, AF., et al. *Pathophysiology* 17(3):169-77 (2010).
<https://www.ncbi.nlm.nih.gov/pubmed/19854628>
22. **Dysbindin Modulates Prefrontal Cortical Glutamatergic Circuits and Working Memory Function in Mice.** Jentsch, JD., et al. *Neuropsychopharmacology* 34, 2601–8 (2009). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2762021/>
23. **Stress Signalling Pathways that Impair Prefrontal Cortex Structure and Function.** Arnsten, A. *National Review of Neuroscience* 10, 410–22 (2009).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2907136/>

24. **Maternal Occupational Exposure to Extremely Low Frequency Magnetic Fields and the Risk of Brain Cancer in the Offspring.** Li, P, et al. *Cancer Causes & Control* 20(6):945-55 (2009). <https://www.ncbi.nlm.nih.gov/pubmed/19224378>
25. **Reproductive and Developmental Effects of EMF in Vertebrate Animal Models.** Pourlis, A.F. *Pathophysiology* 16(2-3):179-89 (2009). <https://www.ncbi.nlm.nih.gov/pubmed/19272761>
26. **Prenatal and Postnatal Exposure to Cell Phone Use and Behavioral Problems in Children.** Divan, HA., et al. *Epidemiology* 19(4):523-29 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18467962>
27. **Effects of Prenatal Exposure to a 900 MHz Electromagnetic Field on the Dentate Gyrus of Rats: A Stereological and Histopathological Study.** Odaci, E., et al. *Brain Research* 1238: 224–229 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18761003>
28. **Exposure to Cell Phone Radiation Up-Regulates Apoptosis Genes in Primary Cultures of Neurons and Astrocytes.** Zhao, T., et al. *Neuroscience Letters* 412: 34–38 (2007). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2713174/>
29. **Cell Death Induced by GSM 900-MHz and DCS 1800-MHz Mobile Telephony Radiation.** Panagopoulos, DJ., et al. *Mutation Research* 626, 69–78 (2006). <https://www.ncbi.nlm.nih.gov/pubmed/17045516>
30. **Ultra High Frequency-Electromagnetic Field Irradiation During Pregnancy Leads to an Increase in Erythrocytes Micronuclei Incidence in Rat Offspring.** Ferreira, A., et al. *Life Sciences* 80(1):43-50 (2006). <https://www.ncbi.nlm.nih.gov/pubmed/16978664>
31. **Attention-Deficit Hyperactivity Disorder.** Biederman, J. & Faraone, S. V. *Lancet* 366(9506): 237–248 (2005). <https://www.ncbi.nlm.nih.gov/pubmed/16023516>
32. **Attention-Deficit/Hyperactivity Disorder: An Overview of the Etiology and a Review of the Literature Relating to the Correlates and Lifecourse Outcomes for Men and Women.** Brassett-Harknett, A. & Butler, N. *Clinical Psychology Review* 27(2): 188–210 (2005). <http://europepmc.org/abstract/med/16081194>

II. EFFECTS ON YOUNG CHILDREN

1. **Electromagnetic Fields, Pulsed Radiofrequency Radiation, and Epigenetics: How Wireless Technologies May Affect Childhood Development.** Sage, C. & Burgio, E. *Child Development* 89(1):129-136 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/28504324>

2. **Prospective Cohort Analysis of Cellphone Use and Emotional and Behavioural Difficulties in Children.** Sudan, M., et al. *Journal of Epidemiology and Community Health* 70(12):1207-1213 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27217533>
3. **Why Children Absorb More Microwave Radiation than Adults: The Consequences.** Morgan, L., et al. *Journal of Microscopy and Ultrastructure* 2(4):196-204 (2014). <https://www.sciencedirect.com/science/article/pii/S2213879X14000583>
4. **Epidemiological Characteristics of Mobile Phone Ownership and Use in Korean Children and Adolescents.** Byun, Y., et al. *Environmental Health and Toxicology* 28 (2013). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3909745/>
5. **A Prospective Study of In-Utero Exposure to Magnetic Fields and the Risk of Childhood Obesity.** Li, D., et al. *Scientific Reports* 2(540) (2012). <https://www.nature.com/articles/srep00540>
6. **Exposure to Extremely Low-Frequency Magnetic Fields and the Risk of Childhood Cancer: Update of the Epidemiological evidence.** Schüz, J. *Progress in Biophysics and Molecular Biology* 107(3):339-42 (2011). <https://www.sciencedirect.com/science/article/pii/S0079610711001076>
7. **Cell Phone Use and Behavioural Problems in Young Children.** Divan, HA., et al. *Journal of Epidemiol Community Health* 66(6):524-9 (2010). <https://www.ncbi.nlm.nih.gov/pubmed/21138897>
8. **Mobile Phones, Radiofrequency Fields, and Health Effects in Children-Epidemiological Studies.** Feychting, M. *Progress in Biophysics and Molecular Biology* 107(3):343-348 (2010). <https://www.sciencedirect.com/science/article/pii/S0079610711001210>
9. **Exposure to Radio-Frequency Electromagnetic Fields and Behavioral Problems in Bavarian Children and Adolescents.** Thomas, S., et al. *European Journal of Epidemiology* 25(2):135-41 (2009). <https://link.springer.com/article/10.1007/s10654-009-9408-x>
10. **The Sensitivity of Children to Electromagnetic Fields.** Kheifets, L., et al. *Deventer Journal of Pediatrics* 116(2):303-313 (2005). <http://pediatrics.aappublications.org/content/116/2/e303>

III. BRAIN TUMORS

1. **Report of Final Results Regarding Brain and Heart Tumors in Sprague-Dawley Rats Exposed From Prenatal Life Until Natural Death to Mobile Phone Radiofrequency Field Representative of a 1.8 GHz GSM Base Station Environmental Emission.** Falcioni, L, et al. *Environmental Research* (2018). <https://www.ncbi.nlm.nih.gov/pubmed/29530389>
2. **Brain Tumours: Rise in Glioblastoma Multiforme Incidence in England 1995-2015 Suggests an Adverse Environmental or Lifestyle Factor.** Philips, A., et al. *Journal of Environmental and Public Health* (2018). <https://www.hindawi.com/journals/jep/2018/7910754/>
3. **The 2100 MHz Radiofrequency Radiation of a 3G-Mobile Phone and the DNA Oxidative Damage in Brain.** Sahin, D, et al. *Journal of Chemical Neuroanatomy* 75(Pt B):94-98 (2016). <http://www.sciencedirect.com/science/article/pii/S0891061816000041>
4. **Mobile Phone and Cordless Phone Use and the Risk for Glioma - Analysis of Pooled Case-Control Studies in Sweden 1997-2003 and 2007-2009.** Hardell, L. and Carlberg, M. *PathoPhysiology* 22(1):1-13 (2015). <http://www.ncbi.nlm.nih.gov/pubmed/25466607>
5. **Mobile Phone Radiation Causes Brain Tumors and Should Be Classified as a Probable Human Carcinogen.** Morgan, L., et al. *International Journal of Oncology* 46:1865-1871 (2015). <https://www.spandidos-publications.com/ijo/46/5/1865>
6. **Mobile Phone Use and Brain Tumours in the CERENAT Case-Control Study.** Coureau, G., et al. *Occupational & Environmental Medicine* 71(7):514-22 (2014). <http://www.ncbi.nlm.nih.gov/pubmed/24816517>
7. **Use of Mobile Phones and Cordless Phones is Associated with Increased Risk for Glioma and Acoustic Neuroma.** Hardell, L., Carlberg, M. and Hansson Milk, K. *PathoPhysiology* 20(2):85-110 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23261330>
8. **Mobile Phones and Head Tumours: A Critical Analysis of Case-Control Epidemiological Studies.** Levis, A.G., et al. *Open Environmental Sciences* 6(1):1-12 (2012). <https://benthamopen.com/contents/pdf/TOENVIRJ/TOENVIRJ-6-1.pdf>
9. **On the Association Between Glioma, Wireless Phones, Heredity and Ionising Radiation.** Carlberg, M. and Hardell, L. *PathoPhysiology* 19(4):243-252 (2012). <https://www.ncbi.nlm.nih.gov/pubmed/22939605>

10. **Mobile Phones and Head Tumours. The Discrepancies in Cause-Effect Relationships in the Epidemiological Studies - How Do They Arise?** Levis, A.G., et al. *Environmental Health* 10:59 (2011). <http://www.ncbi.nlm.nih.gov/pubmed/21679472>
11. **Indications of Possible Brain Tumour Risk in Mobile-Phone Studies: Should We Be Concerned?** Cardis, E. and Sadetzki, S. *Occupational & Environmental Medicine* 68:169-171 (2011). <http://oem.bmj.com/content/early/2010/12/15/oem.2010.061358>
12. **Estimating the Risk of Brain Tumors from Cell Phone Use: Published Case-Control Studies.** Morgan, LL. *Pathophysiology* 16(2-3):137-147 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19356911>
13. **Cell Phones and Brain Tumors: A Review Including the Long-Term Epidemiologic Data.** Khurana, V.G., et al. *Surgical Neurology* 72(3):205-14 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19328536>
14. **Epidemiological Evidence for an Association Between Use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M. and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19268551>
15. **Histopathological Examinations of Rat Brains After Long-Term Exposure to GSM-900 Mobile Phone Radiation.** Grafström, G., et al. *Brain Research Bulletin* 77(5):257-63 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18782606>
16. **Mobile Phone Use and the Risk of Acoustic Neuroma.** Lonn, S., et al. *Epidemiology* 15(6):653-659 (2004). <https://www.ncbi.nlm.nih.gov/pubmed/15475713>

IV. PAROTID GLAND TUMORS

1. **Does Cell Phone Use Increase the Chances of Parotid Gland Tumor Development? A Systematic Review and Meta-Analysis.** De Siqueira, EC., et al. *Journal of Oral Pathology and Medicine* 46(7) 480-483 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/27935126?dopt=Abstract>
2. **Pooled Analysis of Case-Control Studies on Acoustic Neuroma Diagnosed 1997-2003 and 2007-2009 and Use of Mobile and Cordless Phones.** Hardell, L. and Carlberg, M. *International Journal of Oncology* 43(4):1036-1044 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23877578>
3. **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.** Hardell, L. and Carlberg, M. *Reviews on Environmental Health* 28(2-3):97-106 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/24192496>

4. **Case-Control study of the Use of Mobile and Cordless Phones and the Risk for Malignant Melanoma in the Head and Neck Region.** Hardell, L., Carlberg, M., Hansson Mild, K. & Eriksson, M. *Pathophysiology* 18(4):325-333 (2011). <http://www.sciencedirect.com/science/article/pii/S0928468011000320>
5. **Correlation Between Cellular Phone Use and Epithelial Parotid Gland Malignancies.** Duan, Y., Zhang, HZ. And Bu, RF. *International Journal of Oral and Maxillofacial Surgery* 40(9):966-972 (2011). <http://www.ncbi.nlm.nih.gov/pubmed/21474287>
6. **Mobile Phones Use and Risk of Tumors: A Meta-Analysis.** Myung, SK., et al. *Journal of Clinical Oncology* 27(33):5565-72 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19826127>
7. **Mobile Phone, Cordless Phones and the Risk for Brain Tumours.** Hardell, L. and Carlberg, M. *International Journal of Oncology* 35(1):5-17 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19513546>
8. **Public Health Implications of Wireless Technologies.** Sage, C. and Carpenter, DO. *PathoPhysiology* 16(2-3):233-46 (2009). <https://www.ncbi.nlm.nih.gov/pubmed/19285839>
9. **Epidemiological Evidence for an Association Between use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.sciencedirect.com/science/article/pii/S0928468009000091>
10. **Cell Phone Use and Risk of Benign and Malignant Parotid Gland Tumors - A Nationwide Case-Control Study.** Sadetzki, S., et al. *American Journal of Epidemiology* 167(4):457-467 (2007). <http://aje.oxfordjournals.org/content/167/4/457.abstract>

V. OTHER MALIGNANCIES

1. **Tumor Promotion by Exposure to Radiofrequency Electromagnetic Fields Below Exposure Limits for Humans.** Lerchl, A., et al. *Biochemical and Biophysical Research Communications* 459(4):585-590 (2015). <http://www.sciencedirect.com/science/article/pii/S0006291X15003988>
2. **Swedish Review Strengthen Grounds for Concluding that Radiation from Cellular and Cordless Phones is a Probable Human Carcinogen.** Davis, DL., et al. *Pathophysiology* 20(2):123-129 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23664410>

3. **Multifocal Breast Cancer in Young Women with Prolonged Contact Between Their Breasts and Their Cellular Phones.** West, J., et al. *Case Reports in Medicine* (2013). <http://www.hindawi.com/journals/crim/2013/354682/>
4. **Epidemiological Evidence for an Association Between Use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M. and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19268551>
5. **Study on Potential Effects of “902 MHz GSM-type Wireless Communication Signals” on DMBA-Induced Mammary Tumours in Sprague-Dawley Rats.** Hrubby, R., et al. *Mutation Research* 649(1-2):34-44 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/17981079>

VI. EFFECTS ON DNA

1. **Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells More Strongly Than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk.** Markova, E., et al. *Environmental Health Perspectives* 118(3):394-399 (2010). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854769/>
2. **Radiofrequency Radiation and Gene/Protein Expression: A Review.** McNamee, JP. and Chauhan, V. *Radiation Research* 172(3):265-287 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19708776>
3. **Evaluation of HSP70 Expression and DNA Damage in Cells of a Human Trophoblast Cell Line Exposed to 1.8GHz Amplitude-Modulated Radiofrequency Fields.** Valbonesi, P., et al. *Radiation Research* 169(3):270-279 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18302482>
4. **Gene and Protein Expression Following Exposure to Radiofrequency Fields from Mobile Phones.** Vanderstraeten, J. and Verschaeve, L. *Environmental Health Perspectives* 116(9):1131-5 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18795152>
5. **Nonthermal Effects of RadioFrequency-Field Exposure on Calcium Dynamics in Stem Cell-derived Neuronal Cells: Elucidation of Calcium Pathways.** Rao, V.S., et al. *Radiation Research* 169(3):319-329 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18302487>
6. **Gene Expression Changes in the Skin of Rats Induced by Prolonged 35 GHz Millimeter-Wave Exposure.** Millenbaugh, NJ., et al. *Radiation Research* 169(3):288-300 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18302488>

7. **DNA Damage in Molt-4 T-lymphoblastoid Cells Exposed to Cellular Telephone Radiofrequency Fields in Vitro.** Philips, J., et al. *Bioelectrochemistry and Bioenergetics* 45(1):103-110 (1998).
<http://www.sciencedirect.com/science/article/pii/S0302459898000749>

VII. NEUROLOGICAL/COGNITIVE EFFECTS

1. **Mobile Phone distance From Head and Temperature Changes of Radio Frequency Waves on Brain Tissue.** Forouharmajd, F., Ebrahimi, H. and Pourabdian, S. *International Journal of Preventative Medicine* (2018).
<https://www.ncbi.nlm.nih.gov/pubmed/30123435>
2. **A Prospective Cohort Study of Adolescents' Memory Performance and Individual Brain Dose of Microwave Radiation from Wireless Communication.** Foerster, M., et al. *Environmental Health Perspectives* 126(7) (2018).
<https://ehp.niehs.nih.gov/ehp2427/#tab3>
3. **Electromagnetic Radiation 2450 MHz Exposure Causes Cognition Deficit with Mitochondrial Dysfunction and Activation of Intrinsic Pathway of Apoptosis in Rats.** Gupta, S.K., Mesharam, M.K., and Krishnamurthy, S. *Journal of Biosciences* 43(2) 263-276 (2018). <https://www.ias.ac.in/article/fulltext/jbsc/043/02/0263-0276>
4. **The Effect of Wi-Fi Electromagnetic Waves in Unimodal and Multimodal Object Recognition Tasks in Male Rats.** Hassanshahi, A., et al. *Neurological Sciences* 38(6):1069-1076 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/28332042>
5. **Effects of Short and Long Term Electromagnetic Fields Exposure on the Human Hippocampus.** Deniz, O.G., et al. *Journal of Microscopy and Ultrastructure* 5(4):191-197 (2017). <https://www.sciencedirect.com/science/article/pii/S2213879X17300524>
6. **Effects of Long Term Exposure of 900-1800 MHz Radiation Emitted from 2G Mobile Phone on Mice Hippocampus – A Histomorphometric Study.** Mugunthan, N., et al. *Journal of Clinical and Diagnostic Research* 10(8):AF01-6 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27656427?dopt=Abstract>
7. **Effect of Mobile Phone Radiation on Pentylenetetrazole-Induced Seizure Threshold in Mice.** Kouchaki, E., et al. *Iranian Journal of Basic Medical Sciences* 19(7):800-3 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27635206?dopt=Abstract>
8. **Effects of 3 Hz and 60Hz Extremely Low Frequency Electromagnetic Fields on Anxiety-Like Behaviors, Memory Retention of Passive Avoidance and ElectroPhysiological Properties of Male Rats.** Rostami, A., et al. *Journal of Lasers in Medical Science* 7(2):120-125 (2016). <http://www.ncbi.nlm.nih.gov/pubmed/27330708>

9. **Short-Term Memory in Mice is Affected by Mobile Phone Radiation.** Ntzouni, MP., et al. *Pathophysiology* 18(3):193-199 (2011).
<http://www.ncbi.nlm.nih.gov/pubmed/21112192>
10. **Use of Mobile Phones and Changes in Cognitive Function in Adolescents.** Thomas, S., et al. *Occupational Environmental Medicine* 67(12):861-866 (2010).
<http://www.ncbi.nlm.nih.gov/pubmed/20798018>
11. **Increased Blood-Brain Barrier Permeability in Mammalian Brain 7 Days After Exposure to the Radiation from a GSM-900 Mobile Phone.** Nittby, H., et al. *Pathophysiology* 16(2-3):103-112 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19345073>
12. **Effects of GSM 1800 MHz on Dendritic Development of Cultured Hippocampal Neurons.** Ning, W., et al. *Acta Pharmacologica Sinica* 28(12):1873-1880 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/18031599>
13. **Neurological Effects of Radiofrequency Electromagnetic Radiation.** Lai, H. *Advances in Electromagnetic Fields in Living Systems* 1:27-80 (1994).
http://link.springer.com/chapter/10.1007%2F978-1-4615-2542-4_2#page-1

VIII. EFFECTS ON MALE FERTILITY

1. **Radiations and Male Fertility.** Kesari, K., Agarwal, A. and Henkel, R. *Reproductive Biology and Endocrinology* 16(118) (2018).
<https://rbej.biomedcentral.com/articles/10.1186/s12958-018-0431-1>
2. **The Effect of 2.45 GHz Non-Ionizing Radiation on the Structure and Ultrastructure of The Testis in Juvenile Rats.** *Histology and Histopathology* (2018).
<http://www.hh.um.es/Articles-Proofs/18-049-manuscript.pdf>
3. **Modulatory Effect of 900 MHz Radiation on Biochemical and Reproductive Parameters in Rats.** Narayanan, SN., et al. *Bratislava Medical Journal* 119(9):581-587 (2018). <https://www.ncbi.nlm.nih.gov/pubmed/30226070>
4. **Aloe Arborescens Juice Prevents EMF-Induced Oxidative Stress and Thus Protects from Pathophysiology in the Male Reproductive System In Vitro.** Solek, P., Majchrowics, L., and Koziorowski, M. *Environmental Research* 166:141-149 (2018).
<https://www.sciencedirect.com/science/article/pii/S0013935118301063?via=ihub>

5. **The Effects of Radiofrequency Electromagnetic Radiation on Sperm Function.** Houston, B.J., et al. *Reproduction* (2016).
<https://rep.bioscientifica.com/view/journals/rep/152/6/R263.xml>
6. **Male Fertility and its Association with Occupational and Mobile Phone Tower Hazards: An Analytical Study.** Al-Quzwini, O., et al. *Middle East Fertility Society Journal* (2016). <https://www.sciencedirect.com/science/article/pii/S1110569016300127>
7. **Sperm DNA Damage – The Effect of Stress and Everyday Life Factors.** Radwan, M., et al. *International Journal of Impotence Research* 28(4):148-154 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27076112>
8. **Electromagnetic Radiation at 900 MHz Induces Sperm Apoptosis through bcl-2, bax and caspase-3 Signaling Pathways in Rats.** Liu, Q., et al. *Journal of Reproductive Health* 12:65 (2015). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4523914/>
9. **Habits of Cell Phone usage and Sperm Quality - Does It Warrant Attention?** Zilberlicht, A., et al. *Reproductive BioMedicine Online* 31(3):421-426 (2015).
<http://www.ncbi.nlm.nih.gov/pubmed/26206279>
10. **Extremely Low frequency Magnetic Fields Induce Spermatogenic Germ Cell Apoptosis: Possible Mechanism.** Lee, S., et al. *BioMed Research International* (2014).
<https://www.hindawi.com/journals/bmri/2014/567183/>
11. **In Vitro Effect of Cell Phone Radiation on Motility, DNA Fragmentation and Clusterin Gene Expression in Human Sperm.** Zalata, A., et al. *International Journal of Fertility and Sterility* 9(1):129-136 (2015).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4410031/>
12. **Effect of Electromagnetic Field Exposure on the Reproductive System.** Gye, M. and Park, C. *Journal of Clinical and Experimental Reproductive Medicine* 39(1):1-19 (2012).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3341445/>
13. **Effects of the Exposure of Mobile Phones on Male Reproduction: A Review of the Literature.** La Vignera, S., et al. *Journal of Andrology* 33(3):350-356 (2012).
<https://www.ncbi.nlm.nih.gov/pubmed/21799142>
14. **Use of Laptop Computers Connected to Internet Through Wi-Fi Decreases Human Sperm Motility and Increases Sperm DNA Fragmentation.** Avendano, C., et al. *Fertility and Sterility* 97(1):39-45 (2012). [https://www.fertstert.org/article/S0015-0282\(11\)02678-1/fulltext](https://www.fertstert.org/article/S0015-0282(11)02678-1/fulltext)

15. **Exposure to Magnetic fields and the Risk of Poor Sperm Quality.** Li, D.K, et al. *Journal of Reproductive Toxicology* 29(1):86-92 (2010).
<http://www.ncbi.nlm.nih.gov/pubmed/19910156>
16. **Mobile Phone Radiation Induces Reactive Oxygen Species Production and DNA Damage in Human Spermatozoa *In Vitro*.** De Luliis, G., et al. *PLoS ONE* 4(7) (2009).
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0006446>
17. **Radio Frequency Electromagnetic Radiation (Rf-EMR) from GSM Mobile Phones Induces Oxidative Stress and Reduces Sperm Motility in Rats.** Mailankot, M., et al. *Clinics (San Paulo)* 64(6):561-5 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19578660>
18. **Cell Phones: Modern Man’s Nemesis?** Makker, K., et al. *Reproductive BioMedicine Online* 18(1):148-157 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19146782>
19. **Indicative SAR Levels Due to an Active Mobile Phone in a Front Trouser Pocket in Proximity to Common Metallic Objects.** Whittow, WG., et al. *IEEE Xplore* 149-152 (2008). <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=4516888>
20. **Cell Phones and Male Infertility: Dissecting the Relationship.** Deepinder, F., et al. *Reproductive BioMedicine Online* 15(3):266-270 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/17854521>
21. **Evaluation of the Effect of Using Mobile Phones on Male Fertility.** Wdowiak, A., et al. *Annals of Agricultural and Medicine* 14(1):169-172 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/17655195>
22. **Effect of Cell Phone Usage on Semen Analysis in Men Attending Infertility Clinic: An Observational Study.** Agarwal, A., et al. *Fertility and Sterility* 89(1):124-128 (2008).
<http://www.ncbi.nlm.nih.gov/pubmed/17482179>

IX. ELECTROMAGNETIC SENSITIVITY

1. **Functional Brain MRI in Patients Complaining of Electrohypersensitivity After Long Term Exposure to Electromagnetic Fields.** Heuser, G. and Heuser, S. *Reviews on Environmental Health* 32(3):291-299 (2017).
<https://www.ncbi.nlm.nih.gov/pubmed/28678737>
2. **“Hot Nano Spots” as an Interpretation of So-Called Non-Thermal Biological Mobile Phone Effects.** Pftzner, H. *Journal of Electromagnetic Analysis and Applications* 8(3):62-69 (2016). <http://www.scirp.org/journal/PaperInformation.aspx?PaperID=65212>

3. **Analysis of the Genotoxic Effects of Mobile Phone Radiation Using Buccal Micronucleus Assay: A Comparative Evaluation.** Banerjee, S., et al. *Journal of Clinical and Diagnostic Research* 10(3):ZC82-ZC85 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27135009>
4. **Tinnitus and Cell Phones: The Role of Electromagnetic Radiofrequency Radiation.** Medeiros, L. and Sanchez, T. *Brazilian Journal of Otorhinolaryngology* 82(1):97-104 (2016). <http://www.sciencedirect.com/science/article/pii/S1808869415001639>
5. **Microwave Frequency Electromagnetic Fields (EMFs) Produce Widespread Neuropsychiatric Effects Including Depression.** Pall, M. *Journal of Chemical Neuroanatomy* (2016).
<https://www.sciencedirect.com/science/article/pii/S0891061815000599?via%3Dihub>
6. **Subjective Symptoms Related to GSM Radiation from Mobile Phone Base Stations: a Cross-Sectional Study.** Gomez-Perretta, C., et al. *BMJ Open* 3.12 (2013).
<http://bmjopen.bmj.com/content/3/12/e003836.full>
7. **Green Communication- A Stipulation to Reduce Electromagnetic Hypersensitivity from Cellular Phones.** Kumar, N., et al. *Procedia Technology* 4:682-686 (2012).
<http://www.sciencedirect.com/science/article/pii/S2212017312003891>
8. **Electromagnetic Hypersensitivity: Fact or Fiction?** Genius, S. and Lipp, C. *Science of the Total Environment* 414(1):103-112 (2012).
<http://www.sciencedirect.com/science/article/pii/S0048969711012733>
9. **Neurobehavioral Effects Among Inhabitants Around Mobile Phone Base Stations.** Abdel-Rassoul, G., et al. *NeuroToxicology* 28(2):434-440 (2007).
<http://www.sciencedirect.com/science/article/pii/S0161813X06001835>
10. **Establishing the Health Risks of Exposure to Radiofrequency Fields Requires Multidisciplinary Research.** Hietanen, M. *Scandinavian Journal of Work, the Environment, and Health* 32(3):169-170 (2006).
http://www.sjweh.fi/show_abstract.php?abstract_id=994
11. **Hypersensitivity of Human Subjects to Environmental Electric and Magnetic Field Exposure: A Review of the Literature.** Levallois, P. *Environmental Health Perspectives* 110(4):613-8 (2002). <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.02110s4613>

12. **Electric Hypersensitivity and Neurophysiological Effects of Cellular Phones – Facts of Needless Anxiety.** Harma, M. *Scandinavian Journal of Work, the Environment and Health* 26(2):85-86 (2000). http://www.sjweh.fi/show_abstract.php?abstract_id=515
13. **Radiofrequency (RF) Sickness in the Lilienfeld Study: An Effect of Modulated Microwaves?** Liakouris, A. *Archives of Environmental Health* 236-238 (2018). <https://www.tandfonline.com/doi/abs/10.1080/00039899809605701?journalCode=vzeh20>

X. EFFECTS ON IMPLANTED MEDICAL DEVICES

1. **Ad Hoc Electromagnetic Compatibility Testing of Non-Implantable Medical Devices and Radio Frequency Identification.** Seidman S. and Guag, J. *Biomedical Engineering Online* 12:71 (2013). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3716957/>
2. **Electromagnetic Interference of Pacemakers.** Lakshmanadoss, U. Chinnachamy, P and Daubert, J. *Intech* 229-252 (2011). <http://cdn.intechopen.com/pdfs-wm/13783.pdf>
3. **Interference Between Mobile Phones and Pacemakers: A Look Inside.** Censi, F., et al. *Annali Dell'Istituto Superiore di Sanità* 43(3):254-259 (2007). <http://www.ncbi.nlm.nih.gov/pubmed/17938456>
4. **Electromagnetic Interference on Pacemakers.** Erdogan, O. *Indian Pacing and Electrophysiology Journal* 2(3):74-78 (2002). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1564060/>
5. **Electromagnetic Interference in Patients with Implanted Cardioverter-Defibrillators and Implantable Loop Recorders.** Sousa, M., et al. *Indian Pacing and Electrophysiology Journal* 2(3):79-84 (2002). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1564059/>
6. **Radiofrequency Interference with Medical Devices. A Technical Information Statement.** *IEEE Engineering in Medicine and Biology Magazine* 17(3):111-4 (1998). <http://www.ncbi.nlm.nih.gov/pubmed/9604711>
7. **Cellular Telephones and Pacemakers: Urgent Call or Wrong Number?** Ellenbogen, KA. and Wood, MA. *Journal of the American College of Cardiology* 27(6):1478-9 (1996). <http://www.ncbi.nlm.nih.gov/pubmed/8626961>

XI. 5G EFFECTS

1. **Towards 5G Communication Systems: Are There Health Implications?** Ciaula, AD. *International Journal of Hygiene and Environmental Health* 367-375 (2018).
<https://www.sciencedirect.com/science/article/pii/S1438463917308143>
2. **5G Wireless Telecommunications Expansion: Public Health and Environmental Implications.** Russell, C.L. *Environmental Research* 165:484-495 (2018).
<https://www.sciencedirect.com/science/article/pii/S0013935118300161>
3. **The Human Skin As A Sub-THz Receiver – Does 5G Pose a Danger To It or Not?** Betzalel, N., Ishai, P.B., and Feldman, Y. *Environmental Research* 163:208-216 (2018).
<https://www.sciencedirect.com/science/article/pii/S0013935118300331?via%3Dihub>
4. **The Modeling of the Absorbance of Sun-THz Radiation by Human Skin.** Betzalel, N., Feldman, Y., and Ishai, P.B. *IEEE Transactions on Terahertz Science and Technology* 7(5):521-528 (2017). <https://ieeexplore.ieee.org/document/8016593/>
5. **Human Exposure to RF Fields in 5G Downlink.** Nasim, I. and Kim, S. *Georgia Southern University* (2018). <https://arxiv.org/pdf/1711.03683.pdf>

XII. MISCELLANEOUS ARTICLES

1. **Commentary on The Utility of The National Toxicology Program Study on Cell Phone Radiofrequency Radiation Data for Assessing Human Health Risks Despite Unfounded Criticisms Aimed at Minimizing the Findings of Adverse Health Effects.** Melnick, R. *Environmental Research* 168:1-6 (2019).
<https://www.sciencedirect.com/science/article/pii/S0013935118304973?via%3Dihub>
2. **Genotoxic and Carcinogenic Effects of Non-Ionizing Electromagnetic Fields.** Kocaman, A., et al. *Environmental Research* 163:71-79 (2018).
<https://www.sciencedirect.com/science/article/pii/S0013935118300343?via%3Dihub>
3. **Non-Ionizing EMF Hazard in the 21st Century.** Koh, W.J., and Moochhala, S.M. *IEEE* (2018). <https://ieeexplore.ieee.org/document/8393832/>
4. **Thermal and Non-Thermal Health Effects of Low Intensity Non-Ionizing Radiation: An International Perspective.** Belpomme, D., et al. *Environmental Pollution* 242(A):643-658 (2018).
<https://www.sciencedirect.com/science/article/pii/S0269749118310157?via=ihub>

5. **Comparison of Radiofrequency Electromagnetic Field Exposure Levels in Different Everyday Microenvironments in an International Context.** Sagar, S., et al. *Environmental International* 114:297-306 (2018). <https://www.ncbi.nlm.nih.gov/pubmed/29529581>
6. **World Health Organization, Radiofrequency Radiation and Health – A Hard Nut to Crack (Review).** Hardell, L. *International Journal of Oncology* 51:405-413 (2017). <https://www.spandidos-publications.com/ijo/51/2/405>
7. **Radiation from Wireless Technology Elevates Blood Glucose and Body Temperature in 40-Year-Old Type 1 Diabetic Male.** Kleiber, C. *Electromagnetic Biology and Medicine* 36:3 259-264 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/28524704>
8. **Cardiovascular Disease: Time to Identify Emerging Environmental Risk Factors.** Bandara, P. & Weller, S. *European Journal of Preventative Cardiology* (2017). http://journals.sagepub.com/doi/abs/10.1177/2047487317734898?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%3dpubmed
9. **Effects of Exposure to 2100MHz GSM-like Radiofrequency Electromagnetic Field on Auditory System of Rats.** Celiker, M., et al. *Brazilian Journal of Otorhinolaryngology* (2017). <https://www.ncbi.nlm.nih.gov/pubmed/27865708?dopt=Abstract>
10. **An Investigation of the Effect of Extremely Low Frequency Pulsed Electromagnetic Fields on Human Electrocardiograms (ECGs).** Fang, Q., et al. *International Journal of Environmental Research and Public Health* 13(11) (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27886102>
11. **Evaluation of the Protective Role of Vitamin C on the Metabolic and Enzymatic Activities of the Liver in the Male Rats After Exposure to 2.45 GHz of Wi-Fi Routers.** Shekoohi-Shooli, F., et al. *Journal of Biomedical Physics and Engineering* 6(3):157-164 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27853723?dopt=Abstract>
12. **Exposure of ELF-EMF and RF-EMF Increase the Rate of Glucose Transport and TCA Cycle in Budding Yeast.** Lin, K., et al. *Frontiers in Microbiology* (2016). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5005349/>
13. **Awareness Campaign Against Cell Phone Radiation Hazard: Case Study Oman.** Osmen, W. and Saar, A. *Procedia - Social and Behavioral Sciences* 205(9):381-385 (2015). <http://www.sciencedirect.com/science/article/pii/S1877042815050351>

14. **Electromagnetic Energy Radiated from Mobile Phone Alters Electrocardiographic Records of Patients with Ischemic Heart Disease.** Alhusseiny, AH., et al. *Annals of Medical and Health Science Research* 2(2):146-151 (2012).
<https://www.semanticscholar.org/paper/Electromagnetic-Energy-Radiated-from-Mobile-Phone-Alhusseiny-Al-Nimer/30272ec2956c9000f6598f739579c1464f2891aa>

15. **Effects of Radiofrequency Radiation on Human Ferritin: An *in vitro* Enzymun Assay.** Fattahi-asl, J., et al. *Journal of Medical Signals and Sensors* 2(4):235-240 (2012).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3662108/>

16. **Apoptosis is Induced by Radiofrequency Fields through the Caspase-Independent Mitochondrial Pathway in Cortical Neurons.** Joubert, V., et al. *Radiation Research* 169(1):38-45 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18159956>

17. **Source of Funding and Results of Studies of Health Effects of Mobile Phone Use: Systematic Review of Experimental Studies.** Huss, A., et al. *Environmental Health Perspectives* 115(1):1-4 (2007). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1797826/>

18. **Epidemiology of Health Effects of Radiofrequency Exposure.** Ahlbom, A., et al. *Environmental Health Perspectives* 112(17):1741-1753 (2004).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1253668/>

19. **The Possible Role of Radiofrequency Radiation in the Development of Uveal Melanoma.** Stang, A., et al. *Journal of Epidemiology* 12(1):7-12 (2001).
<https://www.ncbi.nlm.nih.gov/pubmed/11138823>

20. **Biological Effects of Amplitude-Modulated Radiofrequency Radiation.** Juutilainen, J. and Seze R. *Scandinavian Journal of Work, the Environment and Health* 24(2):245-254 (1998). <https://www.ncbi.nlm.nih.gov/pubmed/9754855>

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