

Scientific studies on wireless radiation (radiofrequency/microwave range) related to male reproduction

Excerpt of a brief prepared for Canada's Parliamentary Standing Committee on Health, April 2015

A total of 73 studies on the effects/no effects of wireless radiation (radiofrequency/microwave range) were identified in the scientific literature 2005 to 2014. Below is a synopsis of studies published 2011 to 2014: effects-26; no effects-2; reviews- 4. I would be glad to provide a list of the 73 studies with full references upon request.

Marg Friesen M.Sc.
safer.wireless@gmail.com

Table 3. Wireless radiation (radiofrequency/microwave) studies with evidence of harm (26): 2011 to 2014

Studies with evidence of harm Male reproductive system: sperm/DNA (Human, animal and cell studies)	Comments
Ahmed (2011). Mobile phone RF-EMW exposure to human spermatozoa: an in vitro study. <i>Pakistan Journal of Zoology</i>	... sperm motility affected
Al-Damegh (2012). Rat testicular impairment induced by electromagnetic radiation from a conventional cellular telephone and the protective effects of the antioxidants vitamins C and E. <i>Clinics (São Paulo, Brazil)</i>	...testicular impairment
Atasoy (2013). Immunohistopathologic demonstration of deleterious effects on growing rat testes of radiofrequency waves emitted from conventional Wi-Fi devices. <i>Journal of Pediatric Urology</i>	... deleterious effects on testes
Avendaño (2012). Use of laptop computers connected to internet through Wi-Fi decreases human sperm motility and increases sperm DNA fragmentation. <i>Fertility and Sterility</i>	... decreased sperm motility
Baste (2012). Pregnancy outcomes after paternal radiofrequency field exposure aboard fast patrol boats. <i>Journal of Occupational and Environmental Medicine</i>	... association with perinatal mortality
Dama (2013). Mobile phones affect multiple sperm quality traits: A meta-analysis. <i>F1000Res. F1000Research</i>	... sperm quality affected
Dkhil (2011). Sperm function is affected by the electromagnetic radiation emitted by mobile phone. <i>African Journal of Microbiology Research</i>	... weakened sperm
Falzone (2011). The effect of pulsed 900-MHz GSM mobile phone radiation on the acrosome reaction, head morphometry and zona binding of human spermatozoa. <i>International Journal of Andrology</i>	... sperm shape affected
Ghanbari (2013). The Effects of Cell Phone Waves (900 MHz-GSM Band) on Sperm Parameters and Total Antioxidant Capacity in Rats. <i>International Journal of Fertility & Sterility</i>	... decrease in sperm motility and viability
Gutsch (2011). Impact of cell phone use on men's semen parameters. <i>Andrologia</i>	... pathological shape of spermatozoa
Jurewicz (2013). Lifestyle and semen quality: role of modifiable risk factors. <i>Systems Biology in Reproductive Medicine</i>	> 10 years cell phone use , decreased sperm motility
Kesari (2011). Effects of radiofrequency electromagnetic wave exposure from cellular phones on the reproductive pattern in male Wistar rats. <i>Applied Biochemistry and Biotechnology</i>	... clear indications of infertility patterns
Kesari (2012). Evidence for mobile phone radiation exposure effects on reproductive pattern of male rats: role of ROS. <i>Electromagnetic Biology and Medicine</i>	... reduction in testosterone, distortion of spermatozoa
Kumar (2011). Influence of microwave exposure on fertility of male rats. <i>Fertility and Sterility</i>	... disrupted reproductive pattern
Kumar (2012). Impact of microwave at X-band in the aetiology of male infertility. <i>Electromagnetic Biology and Medicine</i>	... deleterious reproductive factors
Kumar (2013). Influence of electromagnetic fields on reproductive system of male rats. <i>International Journal of Radiation Biology</i>	... DNA strand breakage, shrinkage of testes
Liu, C. (2013). Exposure to 1800 MHz radiofrequency electromagnetic radiation induces oxidative DNA base damage in a mouse spermatocyte-derived cell line. <i>Toxicology Letters</i>	... DNA damage
Liu, C. (2013). Mobile phone radiation induces mode-dependent DNA damage in a mouse spermatocyte-derived cell line: A protective role of melatonin. <i>International Journal of Radiation Biology</i>	... DNA damage
Lukac (2011). In vitro effects of radiofrequency electromagnetic waves on bovine spermatozoa motility. <i>Journal of Environmental Science and Health. Part A, Toxic/hazardous Substances & Environmental Engineering</i>	... negative effect on spermatozoa motility

Studies with evidence of harm Male reproductive system: sperm/DNA (Human, animal and cell studies)	Comments
Meo (2011). Hypospermatogenesis and spermatozoa maturation arrest in rats induced by mobile phone radiation. <i>Journal of the College of Physicians and Surgeons--Pakistan: JCPSP</i>	... abnormal spermatozoa
Milan (2011). Effects of Polygonum aviculare herbal extract on sperm parameters after EMF exposure in mouse. <i>Pakistan Journal of Biological Sciences: PJBS</i>	...reduced sperm motility
Mouradi (2012). The use of FDTD in establishing in vitro experimentation conditions representative of lifelike cell phone radiation on the spermatozoa. <i>Health Physics</i>	...cellphone distance from testes
Rago (2013). The semen quality of the mobile phone users. <i>Journal of Endocrinological Investigation</i>	...DNA fragmentation
Sajeda (2011). Effect of mobile phone usage on semen analysis in infertile men. <i>Tikrit J Pharm Sci.</i>	... decrease in sperm quality
Veerachari(2012). Mobile Phone Electromagnetic Waves and Its Effect on Human Ejaculated Semen: An in vitro Study. <i>International Journal of Infertility and Fetal Medicine</i>	... DNA fragmentation ... sperm stress
Wu (2012). Cytokines produced by microwave-radiated Sertoli cells interfere with spermatogenesis in rat testis. <i>Andrologia</i>	... spermatogenesis interference

Table 4. Studies with little or no effects (2) and reviews (4)

Studies showing little or no effects and Reviews Male reproductive system -sperm/DNA (Human, animal and cell studies)	Comments
Imai (2011). Effects on rat testis of 1.95-GHz W-CDMA for IMT-2000 cellular phones. <i>Systems Biology in Reproductive Medicine</i> , 57(4), 204–209.	... no weight change, no evident testicular toxicity
Trošić (2013). Histological and cytological examination of rat reproductive tissue after short-time intermittent radiofrequency exposure. <i>Arhiv Za Higijenu Rada I Toksikologiju</i>	... no effect on testicular function
Agarwal (2011). Cell phones and male infertility: a review of recent innovations in technology and consequences. <i>International Braz J Urol: Official Journal of the Brazilian Society of Urology</i>	Review
Gye (2012). Effect of electromagnetic field exposure on the reproductive system. <i>Clinical and Experimental Reproductive Medicine</i>	Review
La Vignera (2012). Effects of the Exposure to Mobile Phones on Male Reproduction: A Review of the Literature. <i>Journal of Andrology</i>	Review
Merhi (2012). Challenging cell phone impact on reproduction: A Review. <i>Journal of Assisted Reproduction and Genetics</i>	Review