



Recent scientific publications relevant to mobile telephony

October 2007

Details

Australia: Assessment of SAR and thermal changes near a cochlear implant system for mobile phone type exposures, [McIntosh et al, Bioelectromagnetics](#), Published Online: 27 September 2007.

'...The analysis predicts that the wearer complies with the radiofrequency safety limits specified by [ICNIRP, IEEE and ARPANSA]...for 900 and 1800 MHz mobile phone type exposure and thus raises no cause for concern. The resultant temperature increase is well below the maximum rise of 1 °C recommended by ICNIRP. Effects in the cochlea were insignificant.'

Austria: A meta-analysis for neurobehavioral effects due to electromagnetic field exposure emitted by GSM mobile phones, [Barth et al, Occupational and Environmental Medicine](#), Published Online: 10 October 2007.

'...Results of the meta-analysis suggest that EMFs may have a small impact on human attention and working memory.'

Canada: A large-scale study of the ultrawideband microwave dielectric properties of normal, benign and malignant breast tissues obtained from cancer surgeries, [Lazebnik et al, Physics in Medicine and Biology](#), 52(20):6093-6115, 21 October 2007.

'...Our analyses show that the contrast in the microwave-frequency dielectric properties between malignant and normal adipose-dominated tissues in the breast is considerable, as large as 10:1, while the contrast in the microwave-frequency dielectric properties between malignant and normal glandular/fibroconnective tissues in the breast is no more than about 10%.'

Finland: Mobile Phone Radiation and the Developing Brain: Behavioral and Morphological Effects in Juvenile Rats, [Kumlin et al, Radiation Research](#), 168(4):471-479, October 2007.

'...The results do not indicate a serious threat to the developing brain from mobile phone radiation at intensities relevant to human exposure. However, the interesting finding of improved learning and memory warrants further studies.'

Germany: Determination of exposure due to mobile phone base stations in an epidemiological study, [Neitzke et al, Radiation Protection Dosimetry](#), Published online: 17 September 2007.

'...Standard tests...show that the method for computational exposure assessment developed in this project is applicable for a first classification of exposures due to mobile phone base stations in epidemiological studies.'

Germany: Childhood leukaemia in relation to radiofrequency electromagnetic fields emitted from television and radio broadcast transmitters: epidemiological aspects of a case-control

study in Germany, [Merzenich et al, Umweltmedizin in Forschung und Praxis](#), 12(4): 213-223, 2007.

'...The study focuses on an individual retrospective exposure assessment using data from transmitter network operators. The study has started in March 2005 with a pilot investigation in order to specify the study design and the methods for exposure assessment. A total of 2009 eligible cases have been identified. The study will be finished end of 2007.'

Germany: Determination Of The General Public Exposure Around GSM And UMTS Base Stations, [Bornkessel et al, Radiation Protection Dosimetry](#), Published Online: 12 October 2007.

'...Measurements show a bandwidth of exposures from 0.01% to more than 10% of field strength exposure limits. The distance to the station is not a main influencing factor, whereas the orientation to the main lobe and the sight conditions greatly influence exposure...In line-of-sight scenarios, all programs are able to predict the exposure accurately, whereas in non-line-of-sight situations, free space models overestimate the real exposure by some orders of magnitude.'

Germany: Electromagnetic fields (EMF): Do they play a role in children's environmental health (CEH)?, [Otto et al, International Journal of Hygiene and Environmental Health](#), 210(5):635-644, 31 October 2007.

'...Preliminary results do not seem to indicate a substantial increase in risk. There are presently no scientific data supporting the concept of a special vulnerability of children and adolescents to high-frequency EMF, even if the usual caveats (developing organisms and structures may be more vulnerable, decades of life to come) are considered...'

Japan: Temperature elevation in the eye of anatomically based human head models for plane-wave exposures, [Hirata et al, Physics in Medicine and Biology](#), 52(21):6389-6399, 7 November 2007.

'...Computational results show that the ratio of maximum temperature in the lens to the eye-average SAR (named 'heating factor for the lens') is almost uniform (0.112–0.147 °C kg W⁻¹) in the frequency region below 3 GHz. Above 3 GHz, this ratio increases gradually with an increase of frequency, which is attributed to the penetration depth of an electromagnetic wave...'

Japan: Effects of acute exposure to a 1439 MHz electromagnetic field on the microcirculatory parameters in rat brain, [Masuda et al, In Vivo](#) 21(4):555-562, July-August 2007.

'...No extravasation of intravenously injected dyes from pial venules was found at any BASAR level. No significant changes in the number of endothelial-adhering leukocytes after exposure were found. The hemodynamics indicated that the plasma velocities and vessel diameters remained constant within the physiological range throughout each exposure...These findings suggest that there were no effects on the cerebral microcirculation under the given RF-EMF exposure conditions.'

Switzerland: GSM and DCS Wireless Communication Signals: Combined Chronic Toxicity/Carcinogenicity Study in the Wistar Rat, [Smith et al, Radiation Research](#), 168(4):480-492, October 2007.

'...There was no adverse response to the wireless communication signals. In particular, there were no significant differences in the incidence of primary neoplasms, the number of rats with more than one primary neoplasm, the

multiplicity and latency of neoplasms, the number of rats with metastases, and the number of benign and malignant neoplasms between the rats exposed to wireless communication signals and rats that were sham exposed.'

UK: Continuous wave and simulated GSM exposure at 1.8 W/kg and 1.8 GHz do not induce *hsp16-1* heat-shock gene expression in *Caenorhabditis elegans*, [Dawe et al, Bioelectromagnetics](#), Published On-Line: 27 September 2007.

'...For both continuous wave (CW) and Talk-pulsed RF exposures (2.5 h at 25 °C), there was no indication that RF exposure could induce reporter expression above sham control levels. Thus, at much higher induced RF field strength (close to the maximum permitted exposure from a mobile telephone handset), this particular nematode heat-shock gene is not up-regulated...'

USA: Radio frequency electromagnetic fields: mild hyperthermia and safety standards, [D'Andrea et al, Progress in Brain Research](#), 162:107-135, 2007.

'...Safety standards are based on behavioral responses by laboratory animals to RF-EMF, enhanced by careful studies of human thermoregulatory responses at four specific RF frequencies, thereby providing a conservative level of protection from RF-EMF for humans.'

USA: A doubly resonant cavity for detection of RF demodulation by living cells, [Balzano et al, Bioelectromagnetics](#), Published On-Line: 27 September 2007.

'...The cavity performs exactly as designed and has proved capable of detecting the nonlinearity in a microscopic Schottky diode test structure. The sensitivity is sufficient to detect any nonlinearity in a collection of biological cells that could have any potential biological significance.'

The MMF is an international association of wireless communications manufacturers established to support scientific research in relation to mobile telephony and health www.mmfai.info

The GSM Association (GSMA) is the global trade association that exists to promote, protect and enhance the interests of GSM mobile operators throughout the world. www.gsmworld.com

Disclaimer: The views expressed in the abstracts mentioned in this document are those of the authors and do not necessarily reflect the views of either the MMF or GSMA.

If you are aware of an article published this month that isn't mentioned here please email articles@mmfai.info