



Recent scientific publications relevant to mobile telephony

July 2007

Details

Australia: Effect of Frequency on Insulin Response to Electric Field Stress, Budi et al, [Journal of Physical Chemistry](#), 111(20):5748-5756, 24 May 2007.

'...We observed a frequency-dependent effect where the application of lower-frequency oscillating fields resulted in static-field-like behaviour of the peptide, whereby the intrinsic flexibility of the protein is constrained, thus potentially restricting access to the protein's active state.'

Austria: Radio Frequency-Induced Temperature Elevations In The Human Head Considering Small Anatomical Structures, [Schmid et al, Radiation Protection Dosimetry](#), Published Online: 26 June 2007.

'...the corresponding RF-induced temperature elevations were well below 0.1°C, when considering typical output power values of handheld devices. In case of frontal exposure, with the radiation sources 2.5 cm in front of the closed eye, maximum temperature elevations in the eye in the range of 0.2–0.6°C were found for typical device output powers. A reduction in tissue perfusion mainly affected the maximum RF-induced temperature elevation of tissues deep inside the head...'

Canada: Recent Advances in Research on Radiofrequency Fields and Health: 2001-2003, [Krewski et al, Journal of Toxicology and Environmental Health](#), Part B, 10(4):287-318, June 2007.

'...All of the authoritative reviews completed within the last 2 yr have concluded that there is no clear evidence of adverse health effects associated with RF fields. However, following a recent review of nine epidemiological studies of mobile phones and cancer, Kundi et al. (2004) concluded that the possibility of an enhanced cancer risk cannot be excluded. These same reviews support the need for further research to clarify the possible associations between RF fields and adverse health outcomes that have appeared in some reports. The results of the ongoing World Health Organization (WHO) study of mobile phones will provide important new information in this regard.'

Canada: Fielding a current idea: exploring the public health impact of electromagnetic radiation, [Genuis, Public Health](#), Available online 18 June 2007.

'...Despite the many challenges in establishing irrefutable scientific proof of harm and the various gaps in elucidating the precise mechanisms of harm, epidemiological analyses continue to suggest considerable potential for injury and affliction as a result of a-NIR exposure. As environmental health has not been emphasized in medical education, some clinicians are not fully aware of possible EMF-related health problems and, as a result, manifestations of a-NIR may remain misdiagnosed and ineffectually managed...'

France: Effect of an acute 900 MHz GSM exposure on glia in the rat brain: A time-dependent study, [Brillaud et al, Toxicology](#), Available Online: 26 May 2007.

'...We conclude to a temporary effect, probably due to a hypertrophy of glial cells, with a temporal and a spatial modulation of the effect. Whether this effect could be harmful remains to be studied.'

Germany: Exposure of the General Public to Digital Broadcast Transmitters Compared to Analogue Ones, [Schubert et al, Radiation Protection Dosimetry](#), Published online 6 July 2007.

'...At the point with the highest sum-exposure, only 0.3% of the ICNIRP reference levels for general public exposure (power flux density) was reached. The statistical analysis of both measurement campaigns ('before-after') shows an increase in mean exposure in the centre of the DVB-T starting areas around Nuremberg and Munich, which is mainly based on the increase in the radiated power at the transmitter stations. After developing a simple calculation program based on the ITU-RP.1546, the measured exposure values were compared to calculations. Optimising the results leads to mean deviations of ± 3 dB at about 80% of all points.'

Germany: Electromagnetic fields of a UMTS mobile phone base station and possible effects on health – results from an experimental field study, [Heinrich et al, Umweltmedizin in Forschung und Praxis](#) 12(3):171-180, 2007.

'...No evidence for a correlation between mobile phone base station exposure and self-reported health complaints was found. However, on the days participants made significantly more health complaints, they also thought the mobile phone base station was in use. This is interpreted as an incorrect attribution, which strongly emphasises the importance of using (double-) blind designs in corresponding research.'

Global: The INTERPHONE study: design, epidemiological methods, and description of the study population, [Cardis et al, European Journal of Epidemiology](#), Published Online: 18 July 2007.

'...This paper describes the study design and methods and the main characteristics of the study population. INTERPHONE is the largest case-control study to date investigating risks related to mobile phone use and to other potential risk factors for the tumours of interest and includes 2,765 glioma, 2,425 meningioma, 1,121 acoustic neurinoma, 109 malignant parotid gland tumour cases and 7,658 controls. Particular attention was paid to estimating the amount and direction of potential recall and participation biases and their impact on the study results.'

Japan: Lack of promoting effects of chronic exposure to 1.95-GHz W-CDMA signals for IMT-2000 cellular system on development of N-ethylnitrosourea-induced central nervous system tumors in F344 rats, [Shirai et al, Bioelectromagnetics](#), Published Online: 21 May 2007.

'...Overall, no significant increase in incidences or numbers, either in the males or females, was detected in the EMF-exposed groups. In addition, no clear changes in tumor types in the brain were evident. Thus, under the present experimental conditions, exposure of heads of rats to 1.95-GHz W-CDMA signals for IMT-2000 for a 2-year period was not demonstrated to accelerate or otherwise affect ENU-initiated brain tumorigenesis.'

Spain: The Urban Decline of the House Sparrow (*Passer domesticus*): A Possible Link with Electromagnetic Radiation, [Balmori et al, Electromagnetic Biology and Medicine](#), 26(2):141-151, April 2007.

'...The results of this article support the hypothesis that electromagnetic signals are associated with the observed decline in the sparrow population. We conclude that electromagnetic pollution may be responsible, either by itself or in combination with other factors, for the observed decline of the species in European cities during recent years. The apparently strong dependence between bird density and field strength according to this work could be used for a more controlled study to test the hypothesis.'

Sweden: Ownership and use of wireless telephones: a population-based study of Swedish children aged 7–14 years, [Söderqvist et al, BMC Public Health](#), 7(1):105, 11 June 2007.

'...This study showed that most children had access to and used mobile and cordless phones early in life and that there was a rapid increase in use with age. It also showed very low use of hands-free equipment among children with mobile phone access, and finally that girls talked significantly more minutes per day using mobile and cordless phones than boys did.'

UK: Does Short-Term Exposure to Mobile Phone Base Station Signals Increase Symptoms in Individuals who Report Sensitivity to Electromagnetic Fields? A Double-Blind Randomised Provocation Study, [Eltiti et al, Environmental Health Perspectives](#), Available online 25 Jul 2007.

'...Short-term exposure to a typical GSM base station-like signal did not affect well-being or physiological functions in sensitive or control individuals. Sensitive individuals reported elevated levels of arousal when exposed to a UMTS signal. Further analysis, however, indicated that this difference was likely to be due to the effect of order of exposure rather than the exposure itself.'

USA: Cellular phone use and brain tumor: a meta-analysis, [Kan et al, Journal of Neuro-Oncology](#), 10 July 2007.

'...Nine case-control studies containing 5,259 cases of primary brain tumors and 12,074 controls were included. All studies reported ORs according to brain tumor subtypes, and five provided ORs on patients with ≥ 10 years of follow up. Pooled analysis showed an overall OR of 0.90 (95% confidence interval [CI] 0.81–0.99) for cellular phone use and brain tumor development. The pooled OR for long-term users of ≥ 10 years (5 studies) was 1.25 (95% CI 1.01–1.54). No increased risk was observed in analog or digital cellular phone users...We found no overall increased risk of brain tumors among cellular phone users. The potential elevated risk of brain tumors after long-term cellular phone use awaits confirmation by future studies.'

USA: Dielectric properties of human normal, malignant and cirrhotic liver tissue: in vivo and ex vivo measurements from 0.5 to 20 GHz using a precision open-ended coaxial probe, [O'Rourke et al, Physics in Medicine and Biology](#), 52(15):4707-4719, 7 August 2007.

'...We observe that wideband dielectric properties of in vivo liver tissue are different from the wideband dielectric properties of ex vivo liver tissue, and that the in vivo data cannot be represented in terms of a Cole–Cole model. Further work is needed to uncover the mechanisms responsible for the observed wideband trends in the in vivo liver data.'

USA: Effects of cellular phone emissions on sperm motility in rats, [Yan et al, Fertility and Sterility](#), Available Online: 12 July 2007.

'...Rats exposed to 6 hours of daily cellular phone emissions for 18 weeks exhibited a significantly higher incidence of sperm cell death than control'

group rats through chi-squared analysis. In addition, abnormal clumping of sperm cells was present in rats exposed to cellular phone emissions and was not present in control group rats...These results suggest that carrying cell phones near reproductive organs could negatively affect male fertility.'

USA: Factors that Influence the Radiofrequency Power Output of GSM Mobile Phones, [Erdreich et al, Radiation Research](#), 168(2):253–261, August 2007.

'...The largest factor affecting energy output was study area, followed by user movement and location (inside or outside), use of a hands-free device, and urban city, although the two latter factors accounted for trivial parts of overall variance. Although some highly statistically significant differences were identified, the effects on average energy output rate were usually less than 50% and were generally comparable to the standard deviation. These results provide information applicable to improving the precision of exposure metrics for epidemiological studies of GSM mobile phones and may have broader application for other mobile phone systems and geographic locations.'

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

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