Publication: Cognitive and physiological responses in humans exposed to a TETRA base station signal in relation to perceived electromagnetic hypersensitivity

From the abstract: The present study is the first to examine whether acute exposure to a TETRA base station signal has an impact on cognitive functioning and physiological responses. Participants were exposed to a 420 MHz TETRA signal at a power flux density of 10 mW/m² as well as sham (no signal) under double-blind conditions. Fifty-one people who reported a perceived sensitivity to electromagnetic fields as well as 132 controls participated in a double-blind provocation study. Measures of short-term memory, working memory, and attention were administered while physiological responses (blood volume pulse, heart rate, skin conductance) were monitored. The authors observed no differences in cognitive performance between sham and TETRA exposure in either group; physiological response also did not differ between the exposure conditions. These findings are similar to previous double-blind studies with other mobile phone signals (900–2100 MHz), which could not establish any clear evidence that mobile phone signals affect health or cognitive function.

Bibliography: Wallace et al., Bioelectromagnetics, published online: 6 JUN 2011, Full abstract

"Wiener Medizinische Wochenzeitschrift" with main topic "Mobile Phones and Health"

The current issue (Volume 161/Mai 2011) of the journal "Wiener Medizinische Wochenzeitschrift" dedicates a total of five articles to the topic "Health aspects of mobile phones":

- Editorial (Norbert Leitgeb)
- Children's health and RF EMF exposure. Views from a risk assessment and risk communication perspective (Peter Wiedemann und Holger Schütz)
- Assessment of exposure to mobile telecommunication electromagnetic fields (Christian Bornkessel)
- Wireless communication fields and non-specific symptoms of ill health: a literature review (Martin Röösli und Kerstin Hug)
- Comparative health risk assessment of electromagnetic fields (Norbert Leitgeb)

Abstract in German and English are online at: http://www.springerlink.com/content/n07711725qh8/ http://www.springerlink.com/content/?Author=Norbert+Leitgeb
IARC classification of radiofrequency electromagnetic fields triggered a wave of comments

On 31 May 2011, the World Health Organization’s International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields (RF EMF) with regard to its carcinogenic potential in Group 2B of the IARC classification scale. It is the medium of 5 classification levels, in which extremely-low-frequency fields (ELF fields) were classified as well in 2001:

- 1: Carcinogenic to humans
- 2A: Probably carcinogenic to humans
- 2B: Possibly carcinogenic to humans
- 3: Not classifiable as to its carcinogenicity to humans
- 4: Probably not carcinogenic to humans

IARC explained the decision as follows: “The evidence was reviewed critically, and overall evaluated as being ‘limited’ among users of wireless telephones for glioma (mostly malignant brain tumor, editor’s note) and acoustic neuroma (benign auditory nerve tumor, editor’s note), and ‘inadequate’ to draw conclusions for other types of cancers. The evidence from the occupational and environmental exposures mentioned above was similarly judged ‘inadequate.’” The classification thus refers to the use of cell phones, but not on emissions from base stations or radio and television antennas (which IARC here calls "environmental exposures"). More information on IARC’s decision at: http://www.iarc.fr/. A summary report on the results of the IARC evaluation will be published in the scientific journal “The Lancet Oncology” in its July 1, 2011 issue. In addition, a detailed report will be published as IARC Monograph Volume 102.

Up to now, a total of 941 agents have been classified by the IARC monographs. For this purpose, each time a specific expert group dealt with the scientific evidence on the carcinogenic potential of the regarding agents. To classify RF EMF, a working group of 31 scientists from 14 countries went into a closed meeting from May 24-31 2011. For comparison, the following agents have also been classified as "possibly carcinogenic to humans" (2B): bitumen, bracken fern, chloroform, coffee, marine diesel fuel, occupational exposure in dry cleaning, gasoline engine exhaust, occupational exposure as a firefighter, gasoline, lead, nickel, pickled vegetables, occupational exposure in printing processes, talc-based body powder, work in textile manufacturing industry, and welding fumes.

A number of organizations and official bodies have already given their views on the recent classification of RF EMF. The following selection will reflect the range of opinions:

In a note from May 31, 2011 the International Commission on Non-Ionizing Radiation Protection (ICNIRP) states that ICNIRP awaits with interest the full Monograph that explains the justification and arguments put forward by IARC in arriving at this conclusion. ICNIRP underlines that the Commission has been conducting a review on the potential health effects of RF including carcinogenicity as well as other aspects. The Commission will be publishing a revision of the ICNIRP guidelines on limiting exposure for the general public and occupational groups. It will take into account all aspects of the literature including the material put forward in the IARC Monograph.

http://www.icnirp.de/ICNIRP_IARCclassificationRF.pdf

The International Association for the Wireless Telecommunications Industry (CTIA) points out in a statement, that this IARC classification does not mean cellphones cause cancer. Under IARC rules, limited evidence from statistical studies could be found even though bias and other data flaws may be the basis for the results.

http://www.ctia.org/media/press/body.cfm/prid/2083

The BfS (German Federal Office for Radiation Protection) points out in its IARC-decision-related statement that BfS is one of the WHO’s few international scientific collaboration centres dedicated to mobile telephony, and that, in such a function, it ever further vigorously pursues the question of health effects of mobile telephony.

http://www.bfs.de/de/elektro/papiere/who_stellungnahme.html (in German)
The Mobile Manufacturers Forum (MMF), an international association of telecommunications equipment manufacturers, regards it as important to say that IARC has concluded that RF electromagnetic fields are not a definite nor a probable human carcinogen. Rather, IARC has only concluded that it may still be possible that RF fields are carcinogenic and has identified areas for further research”, said Michael Milligan, Secretary General of the MMF.

http://www.mmfai.org/public/docs/eng/MMF_PR_310511_IARC.pdf

One thing that the Swiss Research Foundation on Mobile Communication (FSM) and the Swiss Cancer League (KLS) have noticed in a joint media release is that the IARC classification system estimates the cancer risk of RF EMF to be every bit as high as that of extremely low-frequency magnetic fields (ELF MF). During the year 2001, the latter were even classified by the International Agency for Research on Cancer as “possibly carcinogenic” (Group 2b) by virtue of consistent epidemiological results (which, however, could not be confirmed in animal and cell models). FSM and KLS resolved to continue their research endeavors in this area in order to fill gaps in knowledge – especially with regard to the rapid spread and development of wireless technologies.

http://www.mobile-rese-arch.ethz.ch/var/20110601_Medienmitteilung_KLS_FSM_d.pdf

Jean Huss, rapporteur of the recently published report of the Parliamentary Assembly of the Council of Europe (PACE) on the “The potential dangers of electromagnetic fields and their effect on the environment” (see WIK EMF Brief No 46 of 31.05.2011) welcomes the announcement by the IARC that mobile phone use should be classified as possibly carcinogenic to humans. “The information from the WHO confirms the contents of my report,” he added. "I wish to underline the need for reinforced protection of children and for active prevention measures. Awareness-raising campaigns targeting teachers and parents should be implemented rapidly, warning of the risks of prolonged use of mobile phones by children from an early age," Mr. Huss concluded.

http://assembly.coe.int/ASP/NewsManager/EMB_NewsManagerView.asp?ID=6707&L=2

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) welcomes the IARC report in a media release of 03.06.2011 and considers that the classification by IARC corresponds to the current ARPANSA advice, including its advice on practical ways in which people can reduce their exposure to the electromagnetic fields produced by wireless telephones. ARPANSA does not consider that the new classification should give rise to any alarm and calls for consideration of the fact that IARC’s classification was based primarily on epidemiological studies of glioma, a malignant type of brain cancer, which some studies have shown to occur more frequently in heavy users of mobile phones. These studies could not rule out other possibilities for the apparent increase in risk but indicated that radiofrequency electromagnetic fields were credible as a cause.


Further statements and media reports (a selection):

Cancer Council Australia:

Health Protection Agency, UK:

American Cancer Society:

Microwavenews, USA (including much background information):
http://www.microwavenews.com/IARC.RF.Decision.html#Continued


The IARC analysis and assessment will be the topic of a plenary session during the Annual Meeting of the Bioelectromagnetics Society (BEMS). The meeting will take place next week in Halifax, Canada, and we will report about the session.
WHO EMF Project: New documents published

On the website of the International WHO EMF-Project the minutes of the 15th meeting of the International Advisory Committee (IAC) in Bordeaux, France 24-25 May 2010, and the Progress Report May 2010-2011 have been published. Both documents provide an overview on current status, activities and developments within the project.