Finland

Report on EMF Activities

10th International Advisory Committee on EMF

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Summary of research on EMF & Health of Mobile Telephony use

During the past 10 years, a series of national research programmes have been carried out in Finland. The first programme 'Biological effects of electromagnetic fields' was conducted in 1994-1997 as a part of the European COST244 and 244bis Actions. It was followed by the second research programme, 'Electromagnetic fields from mobile telephones as a possible health risk', during 1998 - 2000. These programmes included studies on computational modelling of EMF exposure conditions, and on possible cancer-related effects of EMF exposure using both epidemiological methods and animal studies. In addition, possible effects on human volunteers were studied, such as neurophysiological effects and hypersensitivity symptoms. The programmes also included development of exposure systems for animal and cell culture studies, as well as using *in vitro* methods for testing the relationship between bio effects and modulation parameters.

The third National Research Project was called 'Health Risk Assessment of Wireless Communication' (LaVita). This programme aimed at improving dosimetry and modelling of electromagnetic field exposure of humans and cell cultures, developing reliable biomarkers for electromagnetic field effects, providing tumour micro arrays for the international study of mobile phones and brain tumours, and investigating the effects of radiofrequency electromagnetic fields on cognition and brain function, on human circulatory responses, on persons wearing cardiac pacemakers, on hearing and balance and on basic cellular responses to electromagnetic field exposure in yeast and mammalian cells. This project was part of the European collaborative Action COST281 'Potential Health Implications from Mobile Communication Systems' (http://www.cost281.org/).

While the previous Finnish research programmes and other recent studies have produced a lot of useful data for risk assessment of RF fields from wireless commmunication systems, there are still many open questions. Therefore, a new programme was started in 2004 titled 'HERMO: Health Risk Assessment of Mobile Communications'
http://www.uku.fi/hermo/english/index.shtml

The aims of the present research programme are:

1. to study repeatability, mechanisms and relevance to human health of reported low-level effects of RF fields
2. to study acute and chronic effects of RF fields on the nervous system and sensory organs
3. to investigate the effects of RF fields on children
4. to provide high-quality data for cancer risk assessment of RF fields
5. to improve dosimetry and to provide dosimetric support for biological studies
6. to study the dosimetry of RF fields near metallic implants
7. to provide materials for risk communication on RF fields

The Finnish programmes have been funded through the National Technology Agency (TEKES). They have also been sub-supported by mobile phone manufacturers (Nokia, Benefon), Finnish network operators (Sonera, Elisa, Radiolinja, Finnish 2G) and international organizations (MMF, GSM Association, FGF).

Occupational exposure to EMFs close to base stations

A new project, funded by the Ministry of Social Affairs and Health, has been started in May 2005. RF field measurements will be taken in a close proximity to base station antennas. The aim of the project is to

evaluate occupational exposure levels at various working situations where workers may be exposed to RF field emissions.

Activities within EMF-NET

The Finnish institutions participating in the European Coordination Action EMF-NET are FIOH - Finnish Institute of Occupational Health, STUK- Radiation and Nuclear Safety Authority, and University of Kuopio. Data on health effects and risk assessment of exposure to EMF sources will be collected and analysed.

Governmental health authorities and institutes on EMF and Health

Ministry of Social Affairs and Health, Department of Preventive Social and Health Policy and Department of Labour Protection, Helsinki, Finland www.stm.fi

STUK- Radiation and Nuclear Safety Authority www.stuk.fi

Finnish Institute of Occupational Health (FIOH) www.ttl.fi

Legislation & Regulations

EU Council Recommendation (1999/519/EC) was published as the *Ordinance on limiting exposure of the general public to non-ionising radiation (294/2002)* in 2002.

The third part of the EU Physical Agents Directives (2004/40/EC), which deals with limiting occupational exposure to EMFs, was published in Finnish in 2004.

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