



New communication technologies – new risks

Electromagnetic radiation has increased significantly, as the sources of exposure, such as wireless technology and different signals are constantly growing. Although not all radiation is harmful or long lasting enough to cause health effects, last year WHO declared mobile phone radiation a “possible human carcinogen”. Thus it is important to conduct epidemiological and experimental studies on the effects of radiation, and that exposure is monitored in order to assure its safety.

Research is essential, as communication, navigation technology, and information technology continue to develop and we take new field wave forms and new frequencies into use, such as terahertz technology, the applications of which are, for example, fast high-speed communication, security imaging, and medical examination equipment.

“Electromagnetic fields have always existed around us. The earth is a huge magnet, with magnetic areas of many different frequencies. Powerful electric fields are created during thunderstorms, and voltages and spark discharge arise in natural materials,” reminds **Rauno Pääkkönen**, Doctor of Science (Technology) from the Finnish Institute of Occupational Health (FIOH).

Exposure to electromagnetic fields has not increased in direct proportion to the increase in the amount of devices in use. The extent of exposure depends on the proximity of the device to a person, the frequency or wavelength of the electromagnetic field, and its strength. Often exposure is only momentary, and radiation exposure is minimal in terms of reference values.

“We need risk assessment. It is the cornerstone of good regulation: it enables the safe use of devices and equipment both at work and elsewhere,” says Pääkkönen.

Are humans affected by weak electromagnetic radiation?

Research has shown that intense exposure to both electric and electromagnetic fields causes health effects in humans. The question is whether unknown mechanisms exist through which the fields may also have effects at lower radiation levels.

“Studies carried out in the last ten years show little evidence of an association between mobile phone use and brain tumours. The use of mobile phones has increased enormously; cancers in turn have not,” informs **Anders Ahlbom**, Professor of Epidemiology at Sweden’s Karolinska Insitutet.

What are the real effects of mobile phone radiation?

The majority of epidemiological research on the effects of mobile phone radiation has concluded that radiation below the reference value is not dangerous. However, studies do exist that have come to the opposite conclusion.

“We are in the midst of a huge global experiment with mobile phones. It is critical that we set up systems to monitor and provide surveillance of potential impacts,” says Dr. **Devra Davis**, Director of the USA’s Environmental Health Trust.

“For example, the carcinogenic effects of tobacco and asbestos only clearly emerged thirty years afer exposure first began. We must protect children and others who are vulnerable from additional exposure until we have definite evidence. Ten years is not enough time for this,” emphasizes Davis.



Further information

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The speakers of the Research Day

Each year, FIOH presents the Jorma Rantanen Award to a distinguished research scientist or professional with an outstanding career in the promotion of occupational safety and health, and an international reputation for their achievements. The Awardee's lecture on FIOH's Research Day attracts high-level, international experts to Finland. This year's Jorma Rantanen Lecturer is Anders Ahlbom.

Anders Ahlbom

Professor of Environmental Epidemiology and Director, of the Institute of Environmental Medicine, Karolinska Institutet, Stockholm

Professor Anders Ahlbom's research work has had a wide impact on various environmental, public health and occupational issues.

Among other topics, Anders Ahlbom has carried out pioneering epidemiologic research with special emphasis on the health effects of electromagnetic fields. His research interests include epidemiological methods, and the relationship between environmental and lifestyle factors and cardiovascular disease and cancer.

Professor Ahlbom has about 275 scientific publications, including about 175 in peer reviewed journals. He is the editorial board member of several international as well as domestic scientific journals and has served on scientific advisory committees in Sweden, Denmark, Norway, the UK, and Italy. Anders Ahlbom is also a member of the Scientific Advisory Committee of the International Commission for Non-Ionizing Radiation Protection (ICNIRP).

Dr. Devra Davis

the founder and President of Environmental Health Trust

Devra Davis founded Environmental Health Trust in 2007 in Wyoming, USA. The Trust provides basic research and education on environmental health hazards, and promotes constructive policies locally, nationally and internationally.

Her career has spanned all areas of academia, public policy and scientific research. Dr. Davis was the founding director of the Board on Environmental Studies and Toxicology of the U.S National Research Council 1983-1993. As a former Senior Advisor to the Assistant Secretary for Health in the Department of Health and Human Services, she has counselled leading officials in the United States, the United Nations, the European Environmental Agency, and the World Health Organization. She lectures at Georgetown, Harvard, the London School of Hygiene and Tropical Medicine, and many other universities.

*She discusses avoidable environmental hazards on national and international level. Dr. Davis has authored award-winning books, such as *The Secret History of the War on Cancer*, and *Disconnect*, which is a book about the electronic radiation which flows from the devices into our workplaces, public places and homes.*