

Does electromagnetic field exposure endanger health?

New SCENIHR opinion examines latest data on health impact of latest technologies

→ WHAT ARE ELECTROMAGNETIC FIELDS?

An electromagnetic field (EMF) is a physical field produced by stationary, spinning or moving electrically charged particles. EMF is not a recent

phenomenon of our cell

phone and computer culture: electric and magnetic fields exist in nature. Although they are invisible, you can see proof of their existence in a bolt of lightning and the spinning of a compass needle. EMF is also a by-product of electric devices and new technologies. It is the omnipresence of these new technologies (including laptops, cell phones, induction cooktops and Wi-Fi) that has raised concerns about how EMF exposure might impact our health.

→ ARE THERE DIFFERENT TYPES OF EMF?

The term EMF generally refers to electromagnetic frequencies lower than that of visible light, which are the focus of this fact sheet. The entire electromagnetic spectrum, however, ranges from extremely low frequencies (like electric power) to higher frequencies (like microwaves, optical frequencies and, even higher, x-rays). The frequency is related to the wavelength: the shorter the wavelength, the higher the frequency.

→ IS EMF EXPOSURE DANGEROUS FOR YOUR HEALTH?

The results of current scientific research show that there are no evident adverse health effects if exposure remains below the levels set by current standards.

Some studies suggested an association of EMF produced by mobile phones with an increased risk of cancer of the auditory vestibular (acoustic) nerve and of brain tumours. However, other studies did not confirm this association and one finding in particular suggests precaution on the interpretation of this association: the rates of incidence of the corresponding tumours have not increased since the introduction of cell phones.

Previous studies also suggested an association of EMF with an increased risk of Alzheimer's disease. New studies on that subject did not confirm this link.

Epidemiological studies link exposure to Extremely Low Frequency (ELF) fields, from long-term living in close proximity to power lines for example, to a higher rate of childhood leukaemia, which is a rare blood cancer. This correlation has neither been explained nor supported by animal and cellular studies. So far, research findings were not able to find a possible mechanism to explain this association. More research is needed to confirm or exclude a possible causal association.

→ CAN SOME PEOPLE BE ESPECIALLY SENSITIVE TO EMF?

Some people attribute symptoms such as headache, sleep disturbance and fatigue to EMF exposure. While their health concerns are valid, there is for the moment no conclusive scientific evidence that any of their symptoms are caused by exposure to EMF.

→ IS EXPOSURE TO EMF CONTINUALLY INCREASING?

Not necessarily. While the number of sources is increasing, new telephones, appliances and other EMF sources can emit much lower levels of EMFs than earlier models. This could mean that the amount of exposure could actually be decreasing.

However, it is evident that overall exposure depends on one's lifestyle and location.

→ WHAT IS THE SCIENTIFIC COMMITTEES' VIEW IN SUMMARY?

The Scientific Committees do not *conduct* scientific research, but *review* all relevant scientific data, carrying out metadata analyses to put forth an opinion on various topics pertaining to public health. Thorough examination of all pertinent, recent data has not produced any conclusive evidence about EMF being dangerous, which is reassuring. However, further research should be conducted, particularly as pertains to very long-term exposure and potential risks of exposure to multiple sources.

This fact sheet is based on the opinion of the independent Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR): «Potential health effects of exposure to electromagnetic fields (EMF)». **March, 2015**

This opinion is available at:
http://ec.europa.eu/health/scientific_committees/emerging/opinions/index_en.htm