

Mobile phones and wireless networks: No evidence of health risk found in EU study

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There is no scientific evidence that low-level electromagnetic field exposure from mobile phones and other transmitting devices causes adverse health effects, according to a report presented by a Norwegian /Swedish Expert Committee. In addition, the Committee provides advice to authorities about risk management and regulatory practice.

The Committee has assessed the [health hazards](#) from low-level [electromagnetic fields](#) generated by [radio transmitters](#). These electromagnetic fields are found around mobile phones, wireless phones and networks, [mobile phone](#) base stations, broadcasting transmitters and other [communications equipment](#). The Committee has evaluated the power of the fields, whether they pose a health risk, the current regulatory practice, and whether the threshold limit values for exposure are observed.

The report is entitled "Svake høyfrekvente elektromagnetiske felt – en vurdering av helserisiko og forvaltningspraksis. *FHI-rapport 2012:3*" (In English: Low-level radiofrequency electromagnetic fields – an assessment of [health risks](#) and evaluation of regulatory practice. *NIPH report 2012:3*). Published on September 13th, the report contains a Norwegian and English summary.

Studied electromagnetic fields below threshold limit values

The low-level electromagnetic fields generated when antennas in mobile phones and other wireless devices transmit [radio signals](#) are referred to

as radiofrequency (RF) fields.

The [health authorities](#) have determined that the threshold limit values for electromagnetic fields around transmitters in mobile phones and other equipment should be the same as those recommended by the International Commission on Non-ionising [Radiation Protection](#) (ICNIRP). The threshold limit values are based on fields above a certain power that can cause harmful heating of tissue. The ICNIRP has not observed other adverse health effects under this level.

The threshold limit values for these fields are 50 times below the level that causes heating of [human tissue](#) or stimulation of nerve cells. Due to increasing public concerns, the government requested the appointment of an Expert Committee to assess whether such low-level electromagnetic fields could cause health effects.

Research indicates no health risk

The Committee has assessed a number of possible health effects from low-level electromagnetic fields and has evaluated the research in each area.

The group found no evidence that the low-level fields around mobile phones and other transmitters increase the risk of cancer, impair male fertility, cause other reproductive damage or lead to other diseases and [adverse health effects](#), such as changes to the endocrine and immune systems.

No cancer risk found

Most studies concerning cancer have focused on the risk of cancer in the head and neck. The Committee found no scientific evidence for an association between mobile phone use and fast-growing brain tumours.

So far, the effect on slow-growing tumours has been studied in people who have used mobile phones for up to 20 years. These studies show no association.

Only limited data exist for the other types of cancer in the head and neck area, as well as for leukaemia and lymphoma, but so far there is no evidence of an increased risk from mobile phone use. Cancer registries have not observed an increase in these tumours in the population since mobile phones were introduced.

Electromagnetic hypersensitivity

The Committee did not find that mobile phones and other equipment can cause health problems such as electromagnetic hypersensitivity.

Does this mean that electromagnetic hypersensitivity is an imaginary problem?

"We have no grounds to say that the symptoms are imaginary. But a large number of studies suggest that these symptoms must have other causes than the physical effects of low-level electromagnetic fields around mobile phones, wireless transmitters and other wireless equipment. Research provides no evidence to support that interventions help, such as reducing the use of mobile phones or wireless networks. Our opinion is that patients with these health problems must be taken seriously by the health service and should be treated as other patients. There is a need for greater expertise in the health service for this group of patients," says Alexander.

Many people have found that holding a mobile phone to the head causes the area around the ear to become hot – is this due to electromagnetic radiation?

"The skin warms up slightly due to heat from the battery and not from the radio transmitter in the phone. The electromagnetic field will have very little or no heating effect. The body will remove the heat through normal blood flow, in the same way as the body otherwise regulates temperature."

Some mobile phone models transmitting at maximum power provide exposure that comes close to the threshold limit values. Even so, any heating due to electromagnetic fields would be negligible.

Advice: Show general caution

Since there are no uncertainties in the health risk assessment of low-level electromagnetic fields that warrant introduction of the precautionary principle, the Committee believes that general caution is sufficient. This means that exposure should not be higher than needed to achieve the intended purpose.

When comparing the power of the fields around different types of equipment, talking on a mobile phone tops the list, whilst wireless internet networks are at the bottom. Base stations and broadcasting transmitters also come low down in the list. An example of exercising general caution would be for the authorities to inform that hands-free kits will significantly reduce exposure from mobile phones.

Furthermore, the field strength around a mobile phone is lower when there is good coverage.

Little benefit from more research

The Committee has evaluated the assessments previously published by international expert groups, as well as recent individual studies. The material is very extensive. A number of studies were performed on cells

and tissues in the laboratory, as well as in animals and humans. In addition, population studies and cancer registry studies were conducted in several countries.

Little uncertainty

There is always an element of uncertainty in all risk assessments. In this case, the Committee considers the uncertainty to be small. Some uncertainty is associated with high exposure over time, such as extensive use of mobile phones over several decades. Until now, this has been impossible to study. Cancer registries should follow the development of cancer incidence in the future and research should not cease. Studies of animals that have been exposed throughout life provide no evidence that low level RF fields cause cancer. It is unlikely that long-term use of mobile phones will cause health risks that are unknown today.

Regarding equipment that provides the lowest exposure, such as base stations, wireless networks, broadcasting transmitters and proximity to other mobile phones, the experts believe that the risk assessment has negligible uncertainty. In other words, it is reasonably certain that such equipment is not associated with health risks.

The report is approximately 200 pages long and includes Norwegian and English summaries. It can be downloaded in PDF format at www.fhi.no.

Provided by Norwegian Institute of Public Health

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