



Mobile Phones and Health

There is no established scientific evidence that the use of mobile phones causes any health effects. However, some studies have shown a weak association between heavy mobile phone use and brain cancer.

Introduction

Hand held mobile phones have transformed the telecommunications industry. These devices can be used to make telephone calls and connect to the internet from almost anywhere. Mobile phone handsets use low powered radio transmitters that emit radiofrequency (RF) electromagnetic energy (EME) in order to communicate with a base station. Concerns have been raised about the level of RF emissions to which the brain is being exposed when using a mobile phone having potential health consequences, particularly brain cancer.

Does using a mobile phone cause any health effects?

A large number of studies have been performed to investigate whether mobile phones pose a potential health risk. It is the assessment of ARPANSA and other national and international health authorities, including the World Health Organization (WHO), that there is no established scientific evidence that the use of mobile phones causes any health effects. However the possibility of harm cannot be completely ruled out.

Although subtle biological effects caused by RF EME emitted from mobile phones have been reported in some scientific studies, there is no established evidence that these effects lead to adverse health outcomes. The epidemiological (population studies) evidence does not give clear or consistent results indicating mobile phone use causes disease in people. Some studies have shown an association between heavy mobile and cordless phone use and brain cancer. Based largely on this limited evidence the International Agency for Research on Cancer has classified RF fields as possibly carcinogenic to humans. More rigorous long-term studies are being coordinated by WHO and Australia is taking part in this research program.



Are mobile phones regulated in Australia?

All mobile phones marketed in Australia must satisfy the regulatory requirements of the Australian Communications and Media Authority (ACMA). The ACMA's regulatory arrangements require wireless devices like mobile phones to comply with the exposure limits in the ARPANSA RF Standard. The ARPANSA Standard is designed to protect people of all ages and health status against all known adverse health effects from exposure to RF EME. The ARPANSA Standard is based on scientific research that shows the levels at which harmful effects occur and it sets limits, based on international guidelines, well below these harmful levels.

The ARPANSA Standard specifies exposure limits to RF EME for mobile phone handsets in terms of the rate at which a mobile phone user absorbs energy from the handset, the Specific Absorption Rate (SAR). In the ARPANSA Standard the SAR limit for mobile phone handsets is 2 watts per kilogram of tissue. Mobile phone handset manufacturers usually include maximum SAR information in the product manuals, or in a separate brochure in the box, of new mobile phone models released in Australia.

Can I reduce my exposure to RF EME?

Although the currently available scientific research does not indicate that using a mobile phone is associated with harmful health effects there are things one can do to substantially reduce exposure if you are concerned.

The most effective way to reduce exposure is to increase the distance between the mobile phone and the user. This can be achieved by using a hands-free kit or speaker options. Users should pay attention to manufacturers' advice regarding spacing from the body if phones are to be attached to belts or placed in pockets. Other things that can be done to reduce RF EME exposure from mobile phones include:

- not using a mobile phone when a normal wired phone is available
- sending a text message instead of making a voice call
- limiting the duration of the calls, and
- making calls where reception is good.

Currently there are a number of protective devices available on the market which claim to protect the mobile phone user from RF EME emissions. Scientific evidence does not indicate any need for such devices since their use cannot be justified on health grounds and their effectiveness in reducing exposure in everyday use is unproven.

Can my child use a mobile phone?

Concern has also been expressed with regard to mobile phone use by children. At present, there is insufficient scientific evidence to substantiate the hypothesis that children may be more vulnerable to RF EME emissions from mobile phones than adults.

It's recognised that parents provide mobile phones to their children for different reasons, including their child's personal security as well as the assurance of their child being constantly contactable.

It is recommended that, due to the lack of sufficient data relating to children and their long term use of mobile phones, parents encourage their children to limit their exposure by reducing call time, by making calls where reception is good, by using hands-free devices or speaker options, or by texting.

What about cordless phones?

Cordless phones range from low powered devices, transmitting signals over relatively short distances, to devices with power outputs similar to mobile phones. Both the handset and docking cradle are radio transmitting devices. Similarly to mobile phones, the weight of evidence doesn't suggest that the use of cordless phones poses a health hazard although the possibility of harm cannot be ruled out.

Conclusion

There is no established scientific evidence that the use of mobile phones causes any health effects. However the possibility of a small risk cannot be ruled out. For those concerned about health effects, ARPANSA provides advice on how to minimise exposure. Due to the lack of sufficient evidence ARPANSA recommends parents encourage their children to use exposure-reduction measures such as those provided in this fact sheet.

ARPANSA will continue to review the research into potential health effects of RF EME emissions from mobile phones and other devices in order to provide accurate and up-to-date advice.

Useful Links

ARPANSA fact sheet on RF EME
www.arpansa.gov.au/RadiationProtection/basics/rf.cfm

The ARPANSA RF Standard
www.arpansa.gov.au/Publications/codes/rps3.cfm

ARPANSA provides general advice on reducing exposure from wireless devices
www.arpansa.gov.au/RadiationProtection/Factsheets/is_Wireless.cfm

WHO fact sheet on mobile phones
www.who.int/mediacentre/factsheets/fs193/en/