

[youtube:http://www.youtube.com/watch?v=bMwoKOIVCQU auto]

Video: "Mobile phone radiation - what are the facts? Dr Patrick Dixon"

Video: Mobile phone radiation in adults and children - health risks?

Article updated in July 2011:

Below you will read a very small sample of the many different reports suggesting that mobile phone radiation can affect human health.

There have been many more mobile phone radiation warnings over the last few years. Warning: as in every other area of medical research, these mobile phone studies are sometimes small, results can be questioned and can be in conflict.

Some evidence of (small) risk to health from heavy phone use in children

The conclusion so far is that intensive use over a long time may increase [risks](#) of some kinds of benign brain tumours, but the risk still remains very small indeed to the individual user.

However many [governments](#) are increasingly concerned that [risks](#) may be higher for a generation of young children growing up, whose skulls are thin because of age, whose use is high, who have multiple other radiation exposures - for example from antenna on school roofs, or from WiFi at home.

Such Children will not develop problems for maybe 20 years, by which time it may be too late for a generation growing up today.

Research studies have not shown a consistent link between cell phone use and cancer. A large international study (Interphone) published in 2010 found that, overall, cell phone users are at lower risk for two of the most common types of brain tumour, (glioma and meningioma) compared to non-users. For the small proportion of study participants who reported the most total time on cell phone calls, there was some increased risk of glioma, but the researchers considered this finding inconclusive.

But other studies seem to show clear links between acoustic neuroma and very heavy, daily mobile phone use over many years, linked to mobile phone radiation.

A [study published in 2008](#) from University Hospital in Orebro, Sweden, showed that people who started mobile phone use before the age of 20 had a more than five-fold increase in glioma.

This is a cancer of the glial cells which support the central nervous system. About half of all primary brain tumours are gliomas, according to Cancer Research. Home cordless phones were almost as risky as mobile phones, with youngsters using them four times as likely to develop glioma.

Those who started using a mobile phone before the age of 20 also increased the risk by five times of getting an acoustic neuroma.

These are benign tumours which do not cause cancer. Nevertheless, they can damage the auditory nerve and cause deafness.

Researchers said that those who started using their mobiles in their 20s were 50 per cent more likely to contract glioma and twice as likely to get acoustic neuromas.

Hard to find reliable research studies

Mobile phone radiation exposure depends on many things, which may explain why results vary between studies. And since the risk seems to be small, differences between heavy [mobile phone users](#)

and light

[mobile phone users](#)

are small and hard to detect. Studies need to make allowance for:

- The number and duration of calls
- The amount of cell phone traffic at a given time
- The distance from the nearest base station
- The quality of the cellular transmission
- The size of the handset
- For older phones, how far the antenna is extended
- Whether or not a hands-free device is used

Here are a selection of media reports

[June 2010 - San Francisco passes pioneering cellphone radiation law - NYTimes](#)

[May 2010 - Heavy use of cell phones may increase tumour risk: study - The Globe and Mail](#)

[May 2010 - Smartphones responsible for disappearance of honey bee](#)

[Oct 2009 - Smartphones: the health advice given in other counties](#)

[Oct 2009 - Study suggests cellphone radiation weakens bone- Los Angeles Times.](#)

[Sept 2009 - Experts urge more study of cellphone radiation, especially on kids - USATODAY.com](#)

[Dec 2008-Cell phones can affect sperm quality, researcher says - CNN.com](#)

[Sept 2008-Scientists debate possible cell phone link to brain cancer](#)

[June 2006- Cell phone signals excite brain](#)

[Mar 2005 - Cell phones may present health risk for kids.](#)

Here are some other reports:

* Claim of 30% increase in brain tumours found in regular [mobile phone users](#) - but result not found in other studies. Brain

[cancers](#)

were most frequently developed on side of head to which the person held their phone. Biggest increase in cancerous growths was in acoustic neuromas which form behind the ear and are usually treated quite easily. Incidence of these types of growths is increasing in the UK.

Analysis of 1,600 people with growths who had used mobile phones for up to ten years before diagnosis. Risk increased with frequency and duration of exposure to mobile phone radiation. Scientists compared tumour victims with those who led similar lives but did not use mobile phones, and also with another group who had tumours but did not use mobile phones.

Analogue, digital and "cordless" DECT phones all seem to carry risk. Study by Professor Kjell Mild, Orebro University in Sweden -

published in the International Journal of Oncology March 2003

* Suggestion that mobile phone radiation can destroy brain cells and may lead to the early Alzheimer's disease. Long exposure said to destroy cells in parts of the rat brain important for memory, movement and learning and could possibly cause premature onset of illnesses such as Alzheimers if the same effect was found in humans. Lund University Hospital did not look at cancer risk but at direct damage to brain cells. Professor Leif Salford said mobile radiation was already known to allow harmful proteins and toxins through the brain barrier in rats. Now, he detected significant degree of damage to brain neurons in adolescent rats. "If this effect was to transfer to young mobile users, the effects could be terrifying. We can see reduced brain reserve capacity, meaning those who might normally have got Alzheimer's or dementia in old age could get it much earlier." He used rats aged 12-26 weeks because their brain cells were still developing in a similar way to teenagers and younger children. They were exposed for just two hours to radiation equivalent to mobile phone use. Sections of rat brains were examined 50 days after exposure. Animals exposed to medium and high level radiation had many dead

neurons. **Environmental Health Perspectives, the journal of the US Government's National Institute of Environmental Health Sciences February 2003**

* Worms raise safety concerns over mobile phone radiation. Nottingham University UK found that female nematode worms exposed to mobile phone radiation produced stress hormones, grew 10% larger, and produced more eggs. **New Scientist 7 Feb 2002**

* Smartphones may make cancer cells grow faster. Dr Fiorenzo Marinelli of National Research Council in Bologna found that leukaemia cells divide much more rapidly after exposure to mobile phone radiation. They used 1 milliwatt (many phones can produce up to 2 milliwatts) at 900 megahertz (a European frequency). After 24 hours of continuous exposure many cancer cells died, but the effect was reversed after 48 hours, with activation of genes leading to very rapid multiplication. Other scientists dismissed the findings as odd. **New Scientist Mail 24 October 2002**

* UK government launches mobile phone radiation study with £7.5 million. **26 Jan 2002**

* Do mobile phones cause sickness - Dr speaks - **RealVideo Web TV**

* Brain cancer and mobile phones - new French study begins to look at 6,000 [mobile phone users](#) in 14 countries, 50% of whom have brain cancer. Dr Elizabeth Cardis of the International Centre for Cancer Research in Lyon will report in 2003.

* Worries about electromagnetic radiation from mobile phones may affect acceptance of Bluetooth (short range wireless devices for home and office, expected to drive next-generation technologies. **Electronic Buyer's News 16 October 2000**

* List of SAR radiation levels for US mobile phones

* US mobile phone manufacturers will label all mobile phones with electromagnetic radiation emission levels from Autumn 2000 with Europe following from Spring 2001. US mobile phone manufacturers claim radiation levels are 50 times lower than those regarded as safe but are responding to public worries about health [risks](#) from phone use. **Lloyds Product Liability International October 2000**

* Mobile phone radiation disturbs sleep patterns. Electromagnetic fields from mobile phone use in bed significantly increases brain activity during early, non-rapid-eye-movement sleep. Alexander Borbely and Peter Ackerman at the University of Zurich subjected 16 people to electromagnetic radiation similar to mobile phone use for 30 minutes before they went to sleep. Increased brain activity lasted up to 50 minutes. Senior Department of Health source says: "This effectively means that people will soon have to accept that mobile phone do have a biological effect. This is a far cry from 10 years ago. "**Scotsman 16 October 2000, also Sunday Mirror 15 October 2000**

* Mobile phone masts banned from school sites - in Gloucester UK. **Gloucestershire Echo 13 October 2000**

* Undershirts to protect pacemaker users from life-threatening interference from mobile phone radiation - made by Gunze Ltd. Outer layer of shirt made with silver. **Nikkei Weekly 16 October 2000**

* Smartphones may cause damage to nerves around ears - Former chief medical officer for Telstra (Dr Hocking) claims in evidence to Australia Senate enquiry that he had clear evidence of altered nerve function in the skin of a mobile phone user, around the ear area. Readings of nerves were taken 1cm in front of and 1cm behind the ear - both showed altered responses in a man complaining of strange feelings in his head after using a mobile phone. He had many other cases but had investigated only one. He also gave his analysis of leukaemia in children living within 4km of television towers on Sydney's lower north shore. 10 years after diagnosis with leukaemia, those closest to the TV towers had half the survival rates expected. His previous studies suggested a 50% increase in child leukaemia in areas close to the towers. **Su n Herald 8 October 2000**

* Education Secretary (UK) tells schools to limit mobile phone use by children (up to 16 years old) and to make sure that mobile phone masts nearby do not send "beam of greatest intensity" across their land. (Ed: difficult since many schools are actually renting out their own roofs as

aerials to mobile phone companies, potentially exposing those in upper floors to very high electromagnetic radiation levels). **Lloyds Product Liability International 30 September 2000**

* World Health Organisation (WHO) issues mobile phone radiation health advice - use short calls and hands free devices, even though it sees no definite evidence of health risk. **Lloyds Product Liability 30 September 2000**

* Some mobile phone anti radiation kits can TREBLE radiation dosage - according to the Consumers Association. This goes against official government studies suggesting an 80% radiation dose reduction. The differences are in the way the test were carried out. Users with hands free mobile phone microphones and earpieces should keep the phone away from the body and allow the cable to hang loosely, rather than tight, reducing the aerial effect. **Sunday Mirror 8 October 2000 - Also Lloyds Product Liability 30 September 2000**

* New research suggests people living downwind of power lines at greater risk of lung cancer - ion charges cause pollution particles to become sticky and get stuck in lung. **Widely reported in UK Sept 2000**

* Environmental Protection Agency (US) budget into mobile phone radiation research has been stopped. **Business Week July 2000**

* Smartphones and brain cancer - George Carlo reviews 75 studies. Concludes there are now "legitimate questions about safety", making claims of absolute safety no longer supportable. **Me dscape 31 July 2000**

* Australia Senate inquiry into electromagnetic radiation in phone services has been asked to recommend tougher restrictions on the building of mobile phone towers in populated areas and to recommend against involvement of telecommunications companies in research into the area. **Courier Mail Queensland 21 June 2000**

* Pigeons get lost near radio masts. New research shows that the prized birds, able to find their way from 700 miles away, get confused near radiation-emitting masts. Exposure also

makes pigeons fly much lower than usual. Now pigeon fanciers are demanding curbs on the number of mobile phone masts to protect their birds. Research by the Swiss Bird Study Organisation. **Sunday Mirror 18 June 2000**

* British research group warns that children under 16 should refrain from using mobile phones because of possible health effects on growing children - smaller heads, less tissue and bone between transmitter and brain. **Reuters Business News June 2000**

* JR East Japan Railways Co. (JR East) recently started announcements, asking commuters to kindly switch off their phones while in transit because they've become an annoyance and can potentially disturb medical devices. **Asia Intelligence Wire 20 June 2000**

* UK government report says now clear that mobile phone radiation can affect brain function. Now that 20,000 radio masts in the UK are active it means that everyone is being subjected to constant low level electromagnetic radiation. **Sunday Times 12 March 2000**

* Ministry says mobiles are safe - and then buys protectors. Sunday Telegraph reports that Ministry of Defence's Defence Evaluation and Research Agency has ordered Microshield cases for staff users. Microshield says they've sold over 150,000 cases in the last few weeks. It was DERA's own research, at Porton Down, last year, which suggested that mobile phones could cause short-term memory loss and sudden confusion, after scientists found microwave radiation emissions from mobile phones altered the nerve cell behaviour in rats' brains. The World Health Organisation is now conducting a \$5 million study on 3,000 victims of brain tumours, looking for possible links with mobile phone use. A separate four-year study, Project Cephus, is being carried out at Bradford University. **Sunday Telegraph 30 May 1999**

* Brain cancer tumours 2.5 times more likely in heavy [mobile phone users](#) - according to two new unpublished reports. Dr Lennart Hardell, Swedish cancer specialist says: "There is a biological indication that there is a problem which should be studied much more. I think that until we have a definite conclusion, the definitive results of much larger studies, we need to minimise exposure to human beings." Dr George Carlo head of an American research body funded by the mobile phone industry also found an increased risk of rare brain tumours. **Daily Telegraph and Panorama BBC TV 24 May 1999**

* New chip developed which claims to reduce phone radiation to user - Prof Theodore Litovitz, Catholic University of America, Washington DC says his simple attachment to the battery reduces radiation from mobile phones without affecting signal quality. Possible cost \$25 per mobile. **Daily Mirror 9 May 1999**

* New study of brain tumours finds no link between cancer and mobile phone radiation - but study small - only 600 people. **International Journal of Oncology May 1999**

* Mobile phone radiation causes birth defects in chickens - 10,000 chicks exposed in eggs to mobile phone radiation. Result = doubled number of birth defects. Dr Theodore Litovitz, Catholic University of America found research confirmed earlier French findings last year. **Sunday Telegraph (Australia) 2 May 1999**

* New evidence of brain warming appears in medical press with suggestion that it actually IMPROVES brain function. Tiny study - only 36 people for 30 minute bursts. Bristol University Dr Alan Preece. **Lloyds Product Liability International 5 April 1999**

* Roger Coghill loses court case in UK to put health labels on mobile phone handsets warning against radiation. His own lab experiments found that only 33% of white cells exposed to mobile phone radiation for three hours functioned properly. Microshield has received information from 3,000 people who believe mobiles have made them ill. They make devices to lower radiation exposure to mobile users. **Guardian: 14 Nov 1998**

* Sir Richard Doll, discoverer of the link between cancer and smoking has proposed a three year study to prove or disprove whether mobile phones cause cancer. He will supervise the work undertaken by the National Radiological Protection Board to ensure it remains independent of telecom and TV industries who are funding it. Most of those monitored will be telecom and TV workers with high occupational exposure. In the meantime, some mobile phone companies (Hitachi, Ericsson and Alcatel) are patenting new devices to reduce radiation dosage to users. These patents state that the [innovations](#) are "for health reasons" and creating "safe distances" between radiation systems. These patents expose companies to lawsuits by seeming to admit that there is a health issue. The industry is worth £14 billion a year to the UK economy. There are more than 200 million users world-wide, rising to perhaps a billion by 2005.

The Times: 4 Nov 1998 and The

Scotsman: 28 Oct 1998