

Mobile phone safety

The real truth about the hazards, told by independent scientists

In a language everybody can understand

Presented by: **Physicians and Scientists for Responsible Application of Science and Technology (PSRAST)**

SUMMARY

A considerable body of evidence proves, beyond reasonable doubt, that microwave radiation from mobile phones and cordless phones cause a significantly **increased risk for brain tumors. In addition, increasing evidence is indicating that it causes disturbed brain function, damage to the genes and other disturbances.**

The reason is that present safety norms allow the use of mobile phones that emit far too strong radiation to be safe.

These safety norms are contradicted by scientific evidence. Research indicates that much weaker radiation than what is allowed in mobile and cordless phones may have harmful effects.

Conclusion

- **You should be very restrictive with using mobile phones and cordless phones.** Reduce the usage to very few and brief calls. In stead, use landlines as much as possible.
- **People below 20** should use mobile phones that **allow SMS messages only**, but no talking, because the risks are far higher in young people.
- **Further buildup of the mobile phone net must be stopped.** Steadily increasing evidence indicates that it is too harmful to be acceptable for common usage. Moreover, it has been repeatedly confirmed that the radiation from base stations is harmful to health.

For more, see: "[How long is it safe to call?](#)".

Mobile phone = cellular phone = cellphone

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Wake up call from leading expert

"Very high time to put the foot on the brakes"

This says Dr. Olle Johansson, M.D., professor at the Karolinska Institute, Stockholm Sweden, world famous for being responsible for awarding the Nobel Prize in medicine. He has studied the effects of mobile phones, Wifi etc on humans since over 20 years and finds the evidence are compelling about serious hazards. See the video below:

7:08 min

Brief summary: Professor Johansson finds that the brain tumor issue is a minor thing compared to many other harmful effects. While brain tumors affect a small percentage other serious effects affect the whole population including genetic damage, sleep disturbances, reduced learning capacity, concentration difficulties and psychological problems.

Johansson finds it is serious that the politicians take such risks with the whole population in spite of repeated earnest warnings from scientists. He points out that the level of electromagnetic exposure that we are exposed to is huge compared with what has been there through billions of years before. If this radiation is not dangerous, then a large number of high quality scientific papers reporting harmful effects of the radiation hazards must be wrong, but it is highly unlikely that they all are wrong says professor Johansson.

Hall of Fame. Professor Johansson has been appointed a *member of our Hall of Fame* instituted to honour scientists who dare to tell the truth about mobile phone hazards in spite of pressures, if not harrassments, by the powerful mobile phone industry or its proxies. See "[Hall of Fame](#)".

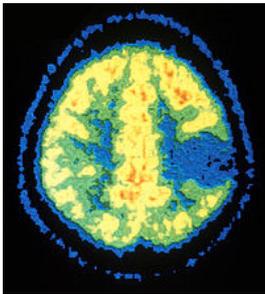
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Latest news

390% increased risk for brain tumors

Professor Lennart Hardell, Sweden has made a large study with 1251 cases of brain tumors compared to controls. The risk increased the more years and the more hours per year the phone had been used. The increased risk was 390% for mobile phones and 190% for cordless phones. The greatest risk was for Astrocytoma, a malignant tumor.

Below you find a brain scan showing a tumor at the right side (blue rounded area), close to were the mobile phone had been held.



Comment

This study that was of high scientific quality, differently from most industrysponsored studies, showed a clear dose-response relationship between the amount of radiation and risk. This adds importantly to the proof that mobile phone radiation increases the risk for brain tumors. The evidence is strong enough today to conclude that mobile phones cause brain tumors. Almost only industry-sponsored studies indicate the opposite, while almost all independent studies have reported an increased risk. This study adds to our conviction that industry-sponsored studies finding no tumor risk are faked and should not be considered, see also [Corrupt](#)

[Science.](#)

The incidence of Astrocytoma in the US is one per 2000 persons. If the risk increases 390 %, this means an increase to almost 2 per 1000 (2 promille), and this is likely to be an underestimate, as the risk will increase further every year the phones are used. 5 billion are using cellphones today (see "[Number of Cellphones.](#)"), and even if only 2 promille would get deadly brain tumors, this means that about **10 million people are under risk to be killed by a brain tumor.**

There is no way that the cellphone industry does not know. The evidence is far too conclusive and it is well known that they are monitoring the research on radiation hazards. We find it absurd that the industry continues denying and suppressing the truth at the expense of the health of millions of people. An especially heavy responsibility falls on the corrupt scientists who have been producing misleading junk research and have been publicly denying any hazard.

There is a discussion between some NGOs whether a new crime category should be created - **"Crimes against the health of mankind"**. The cellphone industry leaders and their corrupt scientists seem to be highly qualified suspects in such a case, considering the enormous numbers of people (that greatly dwarfts the numbers killed in the Holocaust) who will contract deadly brain tumors. It is also very serious that a large part of the 5 billion users run the risk of contracting other disorders, including immune disturbances, mental disorders, disturbed sleep, memory impairments etc., as explained in the video above ["Wake up call.."](#)).

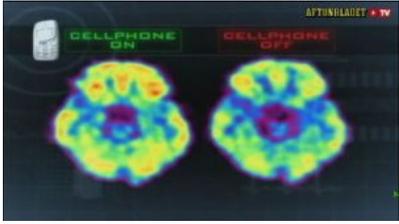
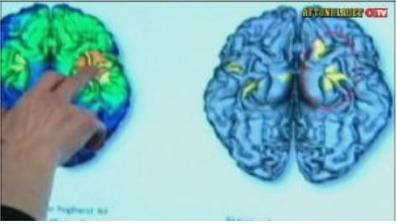
Source: Hardell, L., M. Carlberg, K.H. Mild. 2011. Pooled analysis of case-control studies on malignant brain tumours and the use of mobile and cordless phones including living and deceased subjects, Int. J. Oncol Int J. Oncology February 17, 2011.

[More](#)

Brainscanning confirms that cellphones affect the brain deeply

State-funded research in the USA has proven that cellphones influences the activity of the brain to a significant extent. After 50 min exposure to a cellphone, the metabolism of the brain was increased in the areas close to the phone. The resarch was done by the National Institute on Drug Abuse, see video below:

Here are some brain scan images from this study, taken as snapshots from another video about this research (from an ABC interview posted by a Swedish newspaper ["Sua påverkar mobiltelefonen din hjärna"](#)):

	
<p>The scan to the left shows the brain after mobile phone exposure. The more red color the more brain cell activity (indicated by increased glucose metabolism). There is a general increase and especially so on the right side where the mobile phone was. Compare with the scan to right taken when mobile was off.</p>	<p>The scan to the left shows that the side that was exposed to the mobile phone (right side) was greatly more activated (green color) than the other side. Compare to the scan to the right, taken when the mobile phone was off.</p>

Dr Nora Volkow, the lead author of the study, said that as a consequence of this study:

"I must admit that after seeing the results I changed my way of using the mobile phone and always use a loudspeaker or handsfree" (translation of the text below)



Sources:

- [Good article summarizing the research](#)
- Original scientific article, "[Effects of Cell Phone Radiofrequency Signal Exposure on Brain Glucose Metabolism](#)"
- , by Volkov ND et al, published at JAMA 305: 808-813, 2011

Comment by PSRAST

This result proves beyond the slightest shadow of a doubt that the present safety norms are outdated and untenable. The results disprove the assumption on which the safety norms is based. This assumption is that cellphones only affect the tissues through heating, which requires much higher doses than normal cell phone usage causes. This research proves that normal cellphone usage does have a deep effect on the brain.

It confirms the results of several other studies that have reported that cellphones disturb the activity of the brain, see "[Harmful effects on the brain](#)".

Scientists call for greatly reduced electromagnetic exposure

The scientific journal *Reviews on Environmental Health* has published a report by ***international scientists calling for greatly reduced exposure limits*** for electromagnetic radiation from power line and telecommunications technologies, including cell phones and wireless technologies.

The statement, called The Seletun Scientific Statement, was written by seven scientists in five countries, based on a large and growing body of science showing biological effects. They say ***governments should take decisive action now to protect biological function as well as the health of future generations.***

[From ElectromagneticHealth.Org](#) on [Vimeo](#).

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Two Interphone study scientists warn for mobile phones

According to the study report there was no significant connection between mobile phones and brain tumors. But two scientists participating in the Interphone project noted that most of the subjects in the study had used mobile phones for a too short time for brain tumors to appear (this takes ten years or more).

When they recalculated the results after excluding people with short exposure, they found that the research data from the ***Interphone study indicated a significant risk for the worst form of malignant brain tumor (Glioma).***

This accords with the opinion that the Interphone study was seriously flawed, not allowing any conclusions about the tumor connection, that was expressed by a large group of experts, see the [criticism of Interphone here](#).

Nobel Prize awarding institute corrupt?

We find it especially disconcerting that a world-leading research institute, the **Nobel Prize**

awarding Karolinska Institute in Sweden *has not admitted the great and obvious flaws* of the Interphone study. In stead they maintained in the media that no significant harm from mobile phones was found in the study (a conclusion that is scientifically unjustified as the study proves nothing). This statement resulted in seriously misleading nationwide media messages "No harm from mobile phones".

The fact that they did not do anything to rectify this unjustified conclusion indicates a bias in favor of the interests of the mobile phone industry. It is not evident why they are acting so partially, but considering the corruptive influence of the corporations it seems justified to suspect that the Institute has abandoned the principle of scientific integrity (for more about such corruption, see "[Scientists are corrupted to deny hazards](#)").

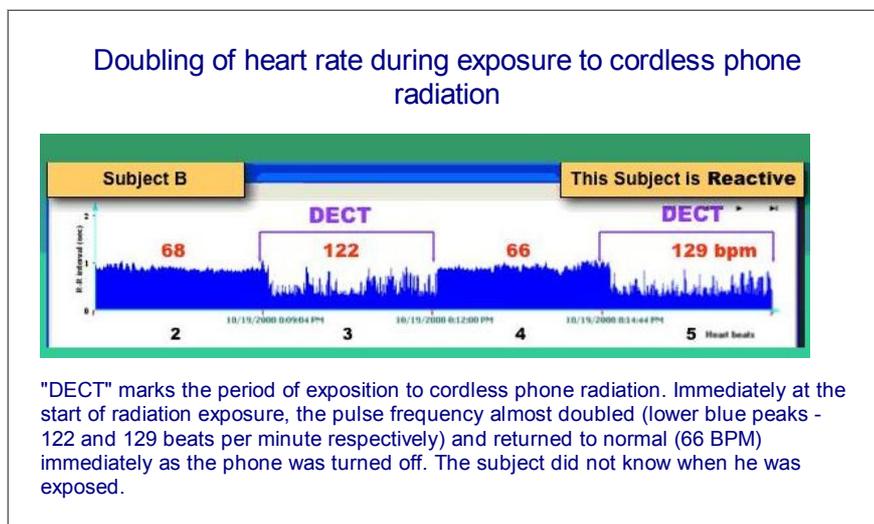
Therefore there are reasons to doubt whether they will be able to impartially select Nobel Price winners - will it be possible to covertly "buy" the prize? (For example by promising important sponsorship to the Institute that of course will have no official connection with the prize).

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Revolutionary discovery: Cordless phones affected the heart

Intensity of exposure was 200 times lower than approved by safety norms

Cordless phones impacted heart rate according to research by Professor Magda Havas of Trent University, Canada. See diagram below.



The study was double-blind, that is, neither the subjects nor the experimenters knew when the radiation occurred.

Also irregular heart beating occurred at exposure. Most importantly the **radiation exposure was 200 times lower than the intensity approved** according to federal guidelines in Canada and the US (1000 microW/cm², 10mW/m²).

Dr Havas emphasizes that the results are **relevant for mobile phones as well**, because the radiation is in the same range of radiation intensity and frequency.

Further confirmation of this kind of result as planned by Dr Olle Johansson **would cost the mobile phone industry billions**, because all phones need to be rebuilt and the base station network will have to be adapted to the reduced radiation levels which will be extremely costly. Therefore *the industry can be expected to use their huge power to "neutralize" this threat in every possible way* including the usual suppression of research with obstruction of "undesirable" research, harrasment of scientists, generation of falsified research and unfounded bagatellizing statements by corrupt top scientists, see [Corrupt Science](#).

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Exposure to cell phone during pregnancy linked to behavioral problems in children at age 7

The radiation that the children in the womb were exposed to was considerably less than the intensity at the earpiece level. Still their brains were evidently affected in a permanent way. This adds to other evidence, including that of Havas (above), indicating that much lower levels of radiation than allowed by governmental guidelines can have harmful effects.

For more [click here](#)

Scientific experts reiterate the recommendations of PSRAST

A comprehensive review about Mobile Phone radiation hazards published in November 2010 concluded:

People should be very restrictive with using mobile phones, as there is a significant body of compelling scientific evidence indicating serious hazards from their use. Therefore, it is advisable to reduce the use to very few and brief calls. People younger than 20 years should have mobile phones that allow short message service messages only, but no talking, because the risks are far higher in young people.

Source: "[Risk of Brain Tumors From Wireless Phone Use](#)"

Comment

This conclusion is almost word by word the same as what we have stated since a couple of years. In January 2009, we even sent a message to the European Union Commission asking them to take measures to prevent young people from using cell phones other than for SMS-messages, see "[Suggested measures for reducing the risk of mobile phone radiation damage in young people](#)". Regrettably, the EU Commission replied that they did not find this necessary as there is "no evidence of hazards". This raises the suspicion that their scientists, are corrupted because it is less likely that they are incompetent, see our [Comment to the EU reply](#).

The Interphone study on tumor risk has serious weaknesses

Does not prove that mobile phones are safe

In May 2010 the news was released that the Interphone study seems to prove that Cell Phones are safe, but *this is an unfounded conclusion*.

An independent review reveals **serious flaws and biases in the world-wide, cellphone industry-funded Interphone Study**. Because of these errors, the *risk of contracting brain tumors due to cellphone usage is underestimated* to an important extent. Yes, the flaws of the study are such that it does not allow any reliable scientific conclusions about tumor risk.

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Warning by the expert appointed by the cellphone industry to investigate the safety

"...with medical science indicating increased risks of tumors, cancer, genetic damage and other health problems from the use of cellphones, **the government and the cellphone industry have abandoned the public.**"

This is a statement by **Dr George Carlo**, a leading scientist, who was trusted by the Mobile Phone Industry in the US to be most competent to correctly assess the safety of the mobile phones. Therefore they sponsored him with **28 million dollars** to make a very thorough examination. But after a few years of denying the hazards to the satisfaction of his sponsors, he changed his opinion in the face of accumulating evidence about the dangers and wrote a book about it. Here is a Youtube video with him:

Since the public communication of his findings, **Dr Carlo "has been threatened, physically attacked, defamed, and his house mysteriously burned down."** Instead of listening to the well founded evaluation of the scientist the mobile phone industry trusted as most suitable for assessing the issue, they did not only ignore his results, but they sought to discredit him personally among reporters and other scientists.

How can anyone trust research and scientists sponsored by such corporations as it is very evident from the case of Dr Carlo that the corporations do not accept other than favorable results regarding safety?

Yet it is this **pseudoscience** that has been used by governments as the justification for continued support to the buildup of the mobile phone system in spite of the increasingly strong evidence about its hazards. See also "[Corrupt Science](#)" below.

Source: George Louis Carlo, Ph.D., Martin Schram "[Cell phones: Invisible hazards in the wireless age: An Insider's Alarming Discoveries about Cancer and Genetic Damage.](#)"

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Risky microwave devices

All these devices emit the same harmful microwaves:

- o **Mobile phones** also called cell phones, cellular phones, cellulars
- o **Cordless phones**
- o **Wi-Fi devices** (wireless internet connection and wireless networking).

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Mobile etiquette

How to use the mobile in a considerate manner



[Guidelines](#)

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Important news

- Revolutionary antenna reduces radiation into the brain 1000-fold.
For more [click here](#)
- Scientific review of all research confirms serious mobile phone hazards
For more [click here](#)
- Do cellphones really protect against Alzheimer's? An alternative explanation.
Jan 2010.
For more [click here](#)
- The interphone study has serious weaknesses. Does not prove that mobile phones are safe
For more [click here](#)
- PSRAST proposes EU to require the manufacture of SMS-only mobile phones for young people
For more, [click here](#)
- WHO study in 13 countries confirm increased risk for brain tumors
For more, [click here](#)
- Alarming report - fivefold increased risk for brain tumors in children
For more, [click here](#)
- Scientists warn US congress for cancer risk from cellphone usage.
For more, [click here](#)
- Serious health concerns regarding cell phones raised by a group of independent scientists.
For more, [click here](#)
- Cellphones affect your cells. New evidence proving harmful effects.
For more, [click here](#)
- The German government warns citizens to avoid using Wi-Fi
For more [Click here](#)
- A biophysicist calls on a ban on Wi-Fi because of health risks.
For more, [click here](#)
- Finnish research confirms increased brain cancer risk
For more, [click here](#)
- Threefold increased Cancer risk found among people in the vicinity of a GSM-base station
For more, [click here](#)
- New Austrian research confirms health effects of base station radiation.
Significant effects on wellbeing and psychological test performance found at levels far below recommended radiation intensity.
For more, [click here](#)
- Mobile Phone Tower causing brain tumors?
Building Top Floors under the Antenna Closed After Brain Tumor Alert
The top floors of a Melbourne office building were closed down and 100 people evacuated after a seventh worker in as many years was diagnosed with a brain tumour.
For more, [click here](#)
- *DNA is damaged by mobile phone radiation*

For more, [click here](#)

- Large study reports 100% increase of malignant brain tumor risk.

For more, [click here](#).

- Three european studies indicate increased brain tumor risk.

For more, [click here](#).

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What is safe radiation?

Scientific experts reject governmental safety guidelines

1. The Catania Resolution

This resolution, made in Catania (2002) by world leading experts, rejects safety rules based on the belief that mobile phone radiation only can harm by heating the tissues.

The experts find that scientific evidence indicate harmful radiation effects at intensity levels far below the official safety levels.

This means that the experts disapprove the present official safety guidelines of the European Union, USA, and many other countries. The mobile phones are designed according to these guidelines.

Conclusion

The radiation of mobile phones is too strong to be safe, because their radiation level is based on the outdated and clearly erroneous belief that mobile phone radiation has no other effects on tissues than heating. Experts believe that the maximum level should be 100-1000 times lower than presently allowed.

Source: [The Catania Resolution](#)

2. The Catania resolution confirmed

Another group of scientists recently arrived at the same conclusion as the Catania resolution after a thorough interdisciplinary literature survey, encompassing over 2000 scientific studies. They emphasized that the existing mobile radiation standards for public safety are inadequate to protect public health. That is, the allowed threshold values for radiation are far to high.

Source: [The Bioinitiative Report](#). (August 31, 2007)

3. Catania resolution confirmed again by a recent review

A group of independent Indian experts have made a thorough review of all the present evidence. They arrived at the same conclusions and added that people below 20 should only use mobile phones for SMS-messages, reiterating [our proposal to EU](#). Here are their recommendations based on all available evidence especially regarding brain tumors (the list has been edited with bold and italics by us and some text has been deleted or improved for clarity, with our formulations in [isquare brackets]):

1. **Limit the use of cell phones ...keep calls short.**
2. **Children should [not] be allowed to use a cell phone** [other than] in *..emergency...* Because of their .. [thin] skulls, the radiation can penetrate much more deeply.
3. **Wear an air tube headset** (not regular wired headset). The regular wired headset has been found to intensify radiation into the ear canal. The wire not only transmits theradiation from the cell phone but also serves as an antenna, attracting EMFs from the surroundings.
4. **Do not put the cell phone in a pocket or a belt** while in use or while it is on. The body tissue in the lower body areahas good conductivity and *absorbs radiation more quickly than the head*. One study shows that men who wear cellphones near their groin could have their *sperm count dropped* by as much as 30%.
5. If.. [no] headset, *wait for the call to connect before placing the phone next to the ear.*
6. **Do not use the cell phone in enclosed metal spaces** such as vehicles or elevators, where devices may use more power to establish connection.
7. **Do not make a call when the signal strength is [weak]** (1 bar or less), [because much stronger radiation is then emitted by the phone].
8. **Purchase a phone with a low SAR.** Most phones have aSAR level listed in its instruction manual. The SAR level is a way of measuring the quantity of RF energy that isabsorbed by the body.
10. **Use text instead of talk.**
11. **Use landlines.**

- 12. **Keep cell phone off** most of the time. Let people leave messages and then call them back from a landline.
- 13. Limit the use of cell phones in rural areas [because the signal is mostly weak there prompting strong radiation from the cell phone].

Source: "[Risk of Brain Tumors From Wireless Phone Use](#)". *J Comput Assist Tomogr* Volume 34, Number 6, November/December 2010.

Comment by PSRAST

In spite of these thorough assessments by highly competent experts, most governments are ignoring them. It is evident that, Dr Juan Carlo is right when he says in his [book](#):

"...with medical science indicating increased risks of tumors, cancer, genetic damage and other health problems from the use of cellphones, the government and the cellphone industry have abandoned the public."

How could the governments and scientists act so irresponsibly so as to let this happen? Read the section "[Corrupt Science](#)" below and you may understand.

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How long is it safe to call?

As the above mentioned expert groups have concluded, the radiation from mobile phones greatly exceeds safe levels even at normal usage. Therefore, even a short call can have harmful effects.

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PSRAST proposes EU to require the manufacture of SMS-only mobile phones for young people

Proposition to the Directorate for Communication of the EU Commission (January 2009)

"PSRAST suggests measures regarding mobile phone usage for people below 20 years of age because of the findings that they run a considerable risk of developing brain tumors."

"Require the mobile phone industry to **immediately produce mobile phones that only can be used for sending and receiving SMS messages**".

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Popular science articles

In this section we have listed articles that are suitable for the layman. The scientific articles in the next section have been summarized in a non-technical language to make them accessible to laymen as well.

- [The worlds largest experiment \(part 2\)](#). Dr Dale Peterson, former professor of Clinical Family Medicine, at Oklahoma university, summarizes evidence about the harmful effects of electromagnetic radiation including that from mobile phones. Dr Peterson has an impressive [track record of early warning medical alerts](#) about various harmful factors, sometimes several years before they were generally recognized. This indicates an unusually clear-sighted and sharp scientific mind. In this article he is summarizing evidence to conclude that mobile phones and other sources of electromagnetic radiation are a health risk. Links to the other parts of this article series is found [here](#).
- [Video Wake up call](#). An excellent summary of the present state of knowledge (video along with transcript) including strong evidence of increased brain tumor risk due to mobile phone radiation.
- [Mobile Phone-Brain Tumour Public Health Advisory](#). A very good and easy to read review of all the evidence, written by a renowned brain surgeon, Dr Kurana Dr Khurana, who since 1994 has received 14 awards. His well-written and thoroughly researched report has evoked world wide attention.

Excerpt from the website:

- A malignant brain tumour represents a life-ending diagnosis in the vast majority of those diagnosed. There is a significant and increasing body of evidence, to date at least 8 comprehensive clinical studies

internationally and one long-term meta-analysis, for a link between mobile phone usage and certain brain tumours.

- Taken together, the data presented below compellingly suggest that the link between mobile phones and brain tumours should no longer be regarded as a myth. Individual and class action lawsuits have been filed in the USA, and at least one has already been successfully prosecuted, regarding the cell phone-brain tumour link.

[Feature article](#) summarizing his conclusions

- **"Cellphone radiation affects cells in living humans"**. Finnish research demonstrated how certain proteins in human cells are altered at the very same level of mobile phone radiation that you are exposed to at calling. This demolishes the attempt by the mobile phone industry to dismiss several other studies demonstrating the same kind of effect because they were made on animals. This was actually a very weak counterargument, because it is well established that animals react in the same way to biophysical influences.
- **Germany warns citizens to avoid using Wi-Fi**. People should avoid using Wi-Fi wherever possible because of the risks it may pose to health, the environment ministry of the German government said in september 2007.

Wi-fi networks operate in the 2.4 and 5 GHz microwave bands, that is the same order of magnitude as GSM mobile phone microwaves (0,9-1,8 GHz) and the latest mobile brand G3 (1,9-2 GHz and 2,1-2,2 GHz). Higher frequencies are known to be more harmful.

- **Drowning in a sea of Microwaves, the Wi-Fi revolution**, by Dr Mae-Wan Ho, biophysicist and former professor of Biology at the Open University. Summarizes the most recent evidence indicating that microwave radiation, including Wi-Fi, is harmful to health including disturbed brain function and increased cancer risk. **Dr Ho concludes that Wi-Fi systems should be disbanded and banned.**
- **DNA is damaged by mobile phone radiation**. The pioneering research of professor Henry Lai indicating this serious effect has long been ignored by the mobile phone industry who (misleadingly) stated that his findings had not been confirmed. But this was only because no other replications had been made (a sound governmental health protection system should have allocated necessary funding for this but in stead it was ignored). But recently this serious effect has been corroborated by other studies:

- In December 2004, preliminary results of work by 12 groups in seven European countries, the "REFLEX Study", found that radiation at some cell phone levels damages DNA in a laboratory setting. This damage *could not always be repaired by the injured cell*. The 291-page report is online at http://www.powerwatch.org.uk/reports/20041222_reflex.pdf

In a BBC report, the leader of the four-year REFLEX study, German scientist Franz Adlkofer, said **people should use landlines, rather than cell phones, wherever possible.**

- Furthermore an Israeli study found DNA damage, see [DNA damage from mobile phone radiation](#)
- Also an Italian study, see [Cancer cell study revives cellphone safety fears](#) (New Scientist, Oct 2002).
- **Sperm damage from mobile phones**. Hungarian scientists have found 30% sperm decrease in intensive mobile phone users. In addition the sperms were damaged.
- **Physicist theory - mobile microwave interfere with the body and may cause harm..**

Dr Gerard Hyland, a theoretical physicist at the International Institute of Biophysics in Neuss, Germany, says "the guidelines [based on heating effects] protect us against something that isn't a problem,"... He argues that, as well as heat, **mobile phone and mast microwaves emit a kind of pulsing white noise that interferes with our bodies in the same way that phones interfere with aeroplane or hospital equipment.** "The alive human body is an electromagnetic instrument, not just a bag of chemicals," he says. "Information is transported electrically, the body chemistry is controlled by electrical signals."

According to this theory, pulsing microwave radiation from masts and phones causes "interference" in the body, which impairs body function and could lead to illness.

Source: "Making Waves" The Guardian UK, 10 April 2004.

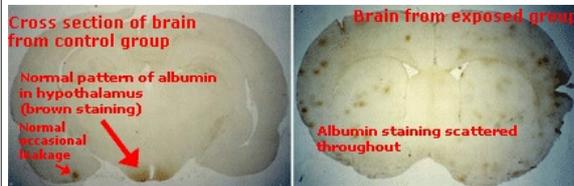
- [FAQ - What Is Electromagnetic Radiation \(EMR\)?](#)
- [Can ElectroMagneticRadiation \(EMR\) exposure cause harm?](#) Interview with Dr. Robert Becker, M.D., one of the first medical pioneers to study natural electrical currents in the human body and to caution about electropollution. Dr. Becker was twice nominated for the Nobel Prize in Medicine.
- [How Electricity Affects Biology](#). A very good popular scientific review on the impact of electromagnetic radiation.
- [Cell phone hazards](#). June 2000.

Quote: "Dr George Carlo - the man hired by the cell phone industry to investigate the claims and who for six years had poured cold water on the issue - suddenly had a change of heart. 'The Government and industry needs to take the next steps quickly - because now we have findings that say there could be a problem,' Carlo told reporters."

- ["Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones."](#) By Salford et al

Excerpt:

Comparison of brains from unexposed and exposed rats



Exposed animals, were much more likely to have albumin leaking from blood vessels in inappropriate locations. This shows as dark dots in the exposed brain above on the right.

Control animals, in contrast, showed either no albumin leakage or occasional isolated spots, as seen in the figure on the left.

A closer look at the cells within the brain revealed that exposed animals had "scattered and grouped dark neurons... often shrunken.. with loss of internal cell structures."

...A neuronal damage of the kind described here may not have immediate, demonstrable consequences, even if repeated. In the long run, however, it may result in reduced brain reserve capacity that might be unveiled by other later neuronal disease or even the wear and tear of aging.

- [Cell phones and cancer.](#) The Repacholi study from Australia indicates an increased cancer risk in mice exposed to mobile phone radiation. It was suppressed by major science journals (Science and Nature) because they feared it would cause panic among users.
- ["Mobile Phones and Cancer: Is the Popular Media Doing Its Job?"](#) Misleading reporting about a study claiming to refute the results of Repacholi. In reality it was not a replication. The result actually indicated a trend in the same direction as Repacholi. The question is further if the "refuting" data are fully correct, as manipulation of data under the pressure of powerful industrial science sponsors is a real problem.
- [Israeli Researchers Question Safety Of Cellphones](#) - "Your Head Serves As An 'Antenna'".

Quote: The shape of the skull "is perfect for making the head serve as a resonator for electromagnetic radiation emitted by the cellphone, which causes it to absorb much of the energy specifically from these wavelengths."

- **Top scientist: mobile masts cannot be declared safe.** The UK Government's new top adviser on mobile phone mast safety, physics professor Lawrie Challis, said: **"We cannot say there is no risk. You could never say that. All you can do is take measures to reduce those risks.** The Government doesn't want to hear that message. They want us to say that masts are completely safe and aren't dangerous, but we can't say that... It could take up to 10 years before we know for sure. There are fears that there might be biological effects and it is not possible at present to be sure that exposure is not without potential health effects." 24 January 2003 [Express & Echo](#).
- [A Wireless Future – at what cost?](#) A "Time Out" must be taken in building the 3rd generation mobile network, until health and environmental effects of the new system have been investigated. First do the research, then build, demands among others assistant professor Olle Johansson at the Karolinska Institutet, Stockholm, Sweden.

Quote: Many studies have indicated serious biological effects of radiofrequent/microwave radiation. Therefore several researchers recommend microwave exposure to be kept as low as possible. In countries like Australia, Italy, Austria and Switzerland they have already lowered the total exposure limits for high frequent radiation. In June this year, 19 researchers at a conference on transmitters in Salzburg demanded that the total exposure to microwave based radiation must be lowered drastically, due to the biological effects. The recommended limits for radiofrequent/microwave radiation must be reconsidered, focusing the total, long term and biological effects.

- [Cellular phones increase the risk of brain cancer.](#)
- ["How dangerous is your mobile phone".](#)

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Selected scientific articles

These are only a few of a considerable body of articles and scientific reports about the effects of mobile phone radiation.

Health risks from Base Station radiation

• Great cancer risk increase in the vicinity of a GSM base station

A German study found a threefold higher frequency of cancer among people living in the vicinity (400 m) of a GSM base station compared to people living further away from the antenna. The risk for mammary cancer was 3,4 times greater and the average age of contracting this disease was considerably lower, 50,8 years than in the control group (69,9 years). The frequency increased also the longer people had been exposed to the radiation. The study covered a ten year long period (1994-2004), starting the year after the installation of the base station. Before the installation of the base station, there was no difference in cancer incidence between people living in the vicinity of the (future) base station and the control area.

Excerpt:

"The result is a quite concrete epidemiological proof of a connexion between exposition to radiation from GSM Base stations and Cancer. This result is, considering the available documentation about the effect of highfrequency electromagnetic radiation not only plausible but probable."

Source (in German): Horst Eger, Klaus Uwe Hagen, Birgitt Lucas, Peter Vogel, Helmut Voit, [Einfluss der räumlichen Nähe von Mobilfunksendeanlagen auf die Krebsinzidenz](#). *Umwelt-Medizin-Gesellschaft* | 17 | 4/2004

Comment by PSRAST

There exists ample and unequivocal evidence today that microwave radiation damages DNA. It has also been established beyond doubt in experimental studies that DNA damage increases cancer risk. This study adds to several others indicating that the DNA damage from microwaves brings about a considerable increase of cancer risk among people exposed to the radiation.

This study is just one of several indicating various health disturbances in people living or working close to base stations (see below).

• New Austrian research confirms health effects of base station radiation.

Despite exposure to radiation far below recommended levels (max. 4.1 mW/m²), effects on wellbeing and performance on cognitive tests was observed in a study of 365 subjects living within 20-600 metres from Mobile Phone Base stations.

Source: Hutter HP, Moshammer H, Wallner P, Kundi M. [Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations](#). *Occup Environ Med*. 2006 May;63(5):307-13.

Comment by PSRAST

This finding adds to the concerns raised by the report of a *remarkable increase of brain tumor rates* in the top floors of an office building, see ["Mobile Phone Tower causing brain tumors?"](#).

These observations are actually not surprising, as it is a well established scientific fact that mobile phone radiation has biological effects far below the present recommended levels.

These experiences support the theory of the physicist, Dr Hyland, [see below](#), that predicted that base station radiation can affect humans even at very low intensities.

• Base stations affected health negatively.

Among people living closer than 300 m away from the base station, a French study found an increased incidence for **tiredness (within 300m), for headache, sleep disturbance, discomfort, etc (200 m). For irritability, depression, loss of memory, dizziness, libido decrease, etc (100 m)**. Women significantly more often than men complained of headache, nausea, loss of appetite, sleep disturbance, depression, discomfort and visual perturbations.

This first study on symptoms experienced by people living in vicinity of base stations shows that, in view of radioprotection, **minimal distance of people from cellular phone base stations should not be < 300 m**.

Source: Santini R, et al, *Pathol Biol (Paris)*. 2002 Jul;50(6):369-73. [Abstract](#)

• Neurobehavioral effects among inhabitants around mobile phone base stations

"Inhabitants living nearby mobile phone base stations are at **risk for developing neuropsychiatric problems** and some changes in the performance of neurobehavioral functions"

Source: Abdel-Rassoul G, et al, Neurotoxicology. 2006 Aug 1. [Abstract](#)

• An explanation how GSM base station can have harmful effects

This is a theoretical explanation based on known biological facts. It makes it evident why even weak microwave radiation can damage DNA.

Excerpt:

21:08 06.08.2006 "microwave radiation can...functionally interfere with the natural processes involved in DNA replication and repair, by subtly altering molecular conformation (architecture), for example; this could well account, respectively, for the reports of chromosome aberrations / micronuclei formation and for the increased amount of DNA fragmentation observed under irradiation."

Source: [How Exposure to GSM & TETRA Base-station Radiation can Adversely Affect Humans](#). By Dr Gerard Hyland.

NOTE: This is a "pdf" = Adobe Acrobat file. If you cannot open it, download the free Adobe Acrobat Reader here:



This is worth while as there are a few more "pdf" files below.

Comment by PSRAST

Hylands predictions comply with the finding of professor Lai that mobile phone radiation damages DNA, see [Biological effects of radiofrequency radiation](#).

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Non-thermal effects

In most countries the mobile radiation safety standards are based on the assumption that the only biological effect of microwave (mobile phone) radiation is heating (the so called "thermal effect"). However ample evidence demonstrate that non-thermal effects do exist and may occur at a significantly lower radiation level than what causes heating. This means that present safety standards need to be changed so that they allow considerably lower levels of radiation intensities.

• **Cellular changes demonstrated at non-thermal levels.** A finnish team has found that certain proteins in human cells change due to the radiation at non-thermal intensity levels. This confirms earlier findings of cellular changes in animals.

Source "[BMC Genomics 2008, 9:77](#)"

• **Serious health concerns regarding cell phones - [The Bioinitiative Report](#).** (August 31, 2007) A group of independent scientists have made a thorough and very careful survey of the literature and they conclude that the existing standards for public safety are inadequate to protect public health.

"Biologically-based public and occupational exposure standards for extra-low frequency and radiofrequency radiation are recommended to address bioeffects and potential adverse health effects of chronic exposure to ELF and RF. **These effects are now widely reported to occur at exposure levels significantly below most current national and international limits.**"

• **Evidence of Biological Effects Below Safety Thresholds.** Two papers by Professor Henry C Lai, PhD, at the University of Washington's Bioelectromagnetics Laboratory.

• [A list of scientific research](#) which demonstrate biological effects below the exposure safety thresholds set for various frequencies, commonly used for wireless

communications.

- [Paper on Non-Thermal Effects for Scientific Workshop.](#)

Quote: There is also some evidence that effects of RFR accumulate over time. Here are some examples: Phillips et al. (1998) reported **DNA damage** in cells after 24 hours of exposure to low intensity RFR. DNA damage can lead to gene mutation, which accumulates over time. Magras and Xenos (1999) reported that mice exposed to low-intensity RFR became less reproductive. **After five generations of exposure, the mice were not able to produce offspring.** This shows that the effect of RFR can pass from one generation to another.

- [Non-Thermal effects of electromagnetic fields](#) by Dr Mae-Wan Ho, former professor of biology at Open University in England. Dr Ho has done research on the biological effects of weak magnetic fields. Among others she has found that very weak fields can affect the development of larvae.
- [Cell and molecular biology associated with radiation fields of mobile telephones.](#) Ross Adey, professor of physiology, Loma Linda School of Medicine in California. Internationally renowned brain scientist. Ample evidence of non-thermal effects are presented. One such effect is that microwaves may cause disordered free radical regulation which is associated with serious diseases including cancer.

Excerpt:

"Free radicals are involved in normal regulatory mechanisms in many tissues, including the brain and vascular systems, and in the regulation of normal programmed-cell-death (apoptosis). Disordered free radical regulation is associated with oxidative stress diseases, including Parkinson's and Alzheimer's diseases, coronary heart disease, aging and cancer.

Acute and chronic microwave exposure produces single strand breaks in DNA of brain and testis cell nuclei *at athermal field levels* [italics by PSRAST]. Failure of apoptosis has been cited as a factor in tumorigenesis through failure to eliminate aberrant cell clones which then undergo further progressive mutation leading to tumor formation.

In initiated cells with mutated DNA but not tumor forming, overexpression of the enzyme ornithine decarboxylase, demonstrated to be sensitive to microwave fields, allows it to act as a tumor promoter, leading to tumor formation in the absence of other promoters."

Conclusion

The scientist who declares that there exists no evidence of non-thermal effects of microwave radiation at intensities below present safety norms is either consciously lying or unaware of important research in the field, which means he is incompetent (because a competent scientist has to be aware of all important research in his field).

Unfortunately such scientists exist who serve money rather than the scientific ideal of impartiality. For more about this problem, see ["Corrupt Science"](#)

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The cancer risk from Mobile phones

- **WHO study in 13 countries confirm increased risk for brain tumors**

Excerpts from The Independent (21.09.2008):

The finding is the result of the biggest ever study by the International Agency for Research on Cancer, part of the World Health Organisation.

Scientists discovered that the chances of developing a malignant tumour are "significantly increased" for people who use a mobile for ten years.

They found that a type of brain tumour called glioma is more likely in long-term mobile users.

French experts analysed data from 13 countries, including Britain and cross-referenced various types of tumours with mobile use.

...

Professor Elisabeth Cardis, who led the study, said: **"To underestimate the risk would be a complete disaster."**

Source: ["Mobile phones increase risk of cancer, study says"](#). The Independent, Oct 16, 2008.

- **Alarming report - fivefold increased risk for brain tumors in children**

Excerpts from The Independent (21.09.2008):

Children and teenagers are five times more likely to get brain cancer if they use mobile phones, startling new research indicates.

The study, experts say, raises fears that today's young people may suffer an "epidemic" of the disease in later life.

European parliament voted for restrictions

Last week the European Parliament voted by 522 to 16 to urge ministers across Europe to bring in stricter limits for exposure to radiation from mobile and cordless phones, Wi-fi and other devices...

Professor Lennart Hardell of the University Hospital in Orebro, Sweden...told the conference – held at the Royal Society by the Radiation Research Trust – that "people who started mobile phone use before the age of 20" had **more than five-fold increase in glioma**, a cancer of the glial cells that support the central nervous system. The extra risk to young people of contracting the disease from using the cordless phone found in many homes was almost as great, at more than four times higher.

...

Indeed, he admits, **the hazard to children and teenagers may be greater even than his results suggest**, because the results of his study do not show the effects of their using the phones for many years. Most cancers take decades to develop, longer than mobile phones have been on the market.

Source: "[Mobile phone use raises childrens risk of brain cancer fivefold](#)".

- **Scientists warn US congress for cancer risk from cellphone usage.**

Excerpts from AP (26.09.2008):

"Precaution is warranted even in the absence of absolutely final evidence concerning the magnitude of the risk" -- especially for children, said David Carpenter, director of the Institute of Health and Environment at the University of Albany, in testimony before a subcommittee of the US House of Representatives Committee on Oversight and Reform.

Ronald Herberman, director of the University of Pittsburgh Cancer Institute -- one of the top US cancer research centers -- said that **most studies "claiming that there is no link between cell phones and brain tumors are outdated, had methodological concerns and did not include sufficient numbers of long-term cell phone users."**

Many studies denying a link defined regular cell phone use as "once a week," he said.

"Recalling the 70 years that it took to remove lead from paint and gasoline and the 50 years that it took to convincingly establish the link between smoking and lung cancer, I argue that we must learn from our past to do a better job of interpreting evidence of potential risk," said Herberman.

Carpenter and Herberman both told the committee the **brain cancer risk from cell phone use is far greater for children** than for adults.

Herberman held up a model for lawmakers showing how radiation from a cell phone penetrates far deeper into the brain of a five-year-old than that of an adult.

A paper published this month by the Royal Society in London found that **adolescents who start using cell phones before the age of 20 were five times more likely to develop brain cancer at the age of 29** than those who didn't use a cell phone.

"It's only on the side of the head where you use the cell phone [that the cancers develop]," Carpenter said.

Source: "[Scientists warn US congress of cancer risk for cell phone use](#)" (AP, 26.09.2008)

Comment by PSRAST

We feel very satisfied that our demand for precaution regarding cellphone use, published at this website several years ago, now is becoming supported by leading American scientists.

Also we are happy to learn that they are realizing that studies that failed to find a cancer connection were using scientifically inadequate methods like absurdly including people using the cellphone once a week and disregarding the well-known fact that it takes 10-20 years of exposure to develop cancers. Results from research on people having been exposed only a few years have been presented as evidence of the "safety of cellphones" (the last one of this type of industry-funded severely flawed studies is the Interphone Study, for criticism, [see here](#)) - this an example of irresponsible and corrupt science, for more, see "[Junk science](#)".

It is not until recently that enough large numbers have been using cellphone sufficiently for their cancers to appear. **The increase of cancers that we are now seeing is the tip of an iceberg**, where the most cancer-prone individuals are falling ill, already after ten years or less of cellphone use. The strongest cancer connection evidence comes from Sweden, where the cellphone was first developed and therefore people there have the longest exposure times.

- **Finnish research confirms increased brain tumor risk**

from the **Radiation and Nuclear Safety Authority** in Finland compared the mobile phone use of 1,521 people with brain cancer (glioma) with that of 3,301 healthy people.

When they looked only at people who had used a mobile for 10 years or more, they found that **they were 39 per cent more likely than average to get a glioma on the side of their head where they held their handset.**

Professor **Anssi Auvinen**, an epidemiologist involved in the study, said a causal connection was credible considering that the tumors developed at the side where the phone was held. : **"It seems credible as it was after long-term exposure - which makes sense in terms of the length of time it takes for tumours to develop - and it is localised to the side of the head where the handset is held."**

Source: "[Mobile phone use 'linked to tumour'](#)". Daily Telegraph Jan 26 2007.

- **A national survey in Israel finds increased salivary gland tumor risk**

...analysis restricted to regular users or to conditions that may yield higher levels of exposure (e.g., heavy use in rural areas) showed consistently elevated risks. For ipsilateral use, the odds ratios in the highest category of cumulative number of calls and call time without use of hands-free devices were 1.58 (95% confidence interval: 1.11, 2.24) and 1.49 (95% confidence interval: 1.05, 2.13),...**our results suggest an association between cellular phone use and PGTs [parotid gland (a salivary gland) tumors/ editors comment].**

Source: "Cellular Phone Use and Risk of Benign and Malignant Parotid Gland Tumors—A Nationwide Case-Control Study". *American Journal of Epidemiology* published online on December 6, 2007

- **Large study confirms greatly increased brain cancer risk**

Over 900 cancer patients from the years 1997-2003 have been compared with a control group of over 2000 persons. The conclusion is that those who have used a mobile or a cordless phone for more than one hour a day during ten years **ran twice the risk of the control group to have gliomas, the most malignant form of brain tumor.**

This study is the largest in the world says a coauthor, Professor Jonas Hardell, a leading independent researcher on mobile phone hazards.

Source: "Pooled analysis of two case-control studies on use of cellular and cordless telephones and the risk for malignant brain tumours diagnosed in 1997-2003", Hardell et al, [International Journal of and Occupational and Environmental Health](#), 16 March 2006.

- **Three groups find danger of tumors**

Excerpt: Three European research groups in separate studies have found an increased risk of brain tumors in people who have used the phones for 10 years or more. Two of the studies found a correlation between the tumor's location and the side of the head where people reported they held the phone. One also suggests the greatest risk is in people who began using the phones before age 20.

Source: "[Three groups find danger of tumors](#)" Sun Sentinel, Florida Febr 1 2006

- **Brain cancer risk increased at the side one holds the phone**

1617 patients with malignant and benign brain tumors were studied by Jonas Hardell, professor of Oncology, Örebro, Sweden. The risk for developing brain tumors was found to increase the more intensely one used the phone and the more years it had been used.

There was a significantly **increased risk to develop brain cancer on the same side as one used to hold the phone, but not on the other side.**

In addition, the risk was increased by 30% for developing Acoustic Neurinoma, a benign tumor on the auditory nerve that may cause permanent deafness if not removed in time.

Source:"[Further aspects on cellular and cordless telephones and brain tumours](#)" (2003)

- **[DNA damage from mobile phone radiation.](#)**

A study in Israel further confirms other observations of DNA-damaging effects of mobile phone irradiation. It is especially significant that this effect was demonstrated to be caused by **non-thermal** influence. Moreover, the nature of the induced change (aneuploidy) is known to increase the risk of cancer.

- **[Cancer cell study revives cellphone safety fears.](#)**

Italian scientist found indications of DNA damage on Leukaemia cells indicating that the radiation disturbed DNA repair processes. New Scientist, Oct 2002.

Excerpt:

Molecular toxicologist David de Pomerai at the University of Nottingham, UK:

"...a consensus is emerging that non-ionising radiation can indirectly damage DNA by affecting its repair system. If the DNA repair mechanism does not work as well as it should, mutations in cells could accumulate, with disastrous consequences. "Cells with unrepaired DNA damage are likely to be far more aggressively cancerous," "

- [Mobile Phones & Cancer](#)

An overview by Dr Mae-Wan Ho of the evidence indicating risk from cancer due to mobile phones.

Comment on the cancer evidence by PSRAST

It must be noted that tumors are crude indicators of harmful effects on the brain. It takes a considerable impact and a long exposure to damaging influences to cause cancer as the body has strong protection mechanisms against tumor development. If even such a pronounced derangement of cellular functioning may develop, there are strong reasons to believe that many subtle and delicate processes may be affected to an important extent. Indicators of such effects are brain wave changes, sleep and behavioral disturbances that have been demonstrated in some studies (see below). Science has yet too crude measurement methods to be able to fully assess the impact of microwaves on the brain, but what already is known indicates that the impact is considerable.

Conclusion

Considering the strong evidence about DNA damage from mobile phone radiation, the finding of an increased risk of brain tumors is not surprising. Rather it would have been highly surprising if no increased risk had been found. Every report that has come since we opened this website in 2003 has confirmed our initial suspicion that mobile phone usage is an important cancer risk.

Bottom line

If you want to minimize the risk of developing a brain tumor, you should be very restrictive with the use of mobile phones, for advice, see our [guidelines](#).

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Harmful effects on the brain**Children exposed during pregnancy had behavioral problems at age 7**

A study on 28.000 Danish children followed up from pregnancy to that age of seven found a significant harmful effect on behavior from mobile radiation exposure during and after pregnancy.

Children exposed to mobile phones while in the womb were **40 per cent more likely to show abnormal behaviour** than those who were not exposed to mobile phone calls by the mother. For those who were exposed only after being born the percentage was eight compared to those whose mothers did not use a mobile phone.

Scientific Source: "Cell phone use and behavioural problems in young children". [J Epidemiol Community Health](#). 7 Dec. 2010.

Newspaper article: "Mobile phone link to kids' bad behaviour revealed in Danish study of mothers". [The Australian](#), 7 Dec. 2010.

Comment by PSRAST

Please note that the radiation level at the level of the womb is at least ten times lower than at the ear when calling. We are preparing a more exact calculation, but already this preliminary calculation indicates that the radiation exposure in the womb was lower than approved by official standards, adding to other observations indicating that these standards are wrong.

Not proven that cellphones protect against Alzheimer's.

A recent study on genetically engineered mice indicated that cellphones reduced their Alzheimer-mimicking brain-disorder. However their condition was not real Alzheimer and they might even have developed this order if they had been exposed long enough says Dr. Jaan Suurkula. He proposes an explanation why they seemed to improve in his blog, see "[Alzheimer-imitating mice don't prove cellphones are safe](#)".

- [Study found mobiles cause sleep disturbance](#). (Jan 22, 2008) During an 18-month period, the researchers studied 35 men and 36 women between the ages of 18 and 45. Dr.

Arnetz, the lead scientist of the study, said all participants were compared when they either were exposed to radiofrequency of 884 MHz wireless signals or no exposure to radiofrequency at all. All 71 participants were exposed to both conditions at different times. The ones who were exposed reported headaches, it took longer for them to fall asleep and the quality of sleep was considerably decreased, with loss of stage 3 and 4 sleep.

The scientists concluded: "The study indicates that during laboratory exposure to 884 MHz wireless signals **components of sleep believed to be important for recovery from daily wear and tear are adversely affected.**"

"If you have trouble sleeping, you should think about not talking on a mobile phone right before you go to bed. The **study strongly suggests that mobile phone use is associated with specific changes in the areas of the brain responsible for activating and coordinating the stress system,**" said Professor Arnetz.

Source: Arnetz BB et al (2007) The Effects of 884 MHz GSM Wireless Communication Signals on Self-reported Symptom and Sleep (EEG)- An Experimental Provocation Study PERS Online 3(7):1148-1150. [Abstract](#)

- [Mobile Phone Exposure Causes Brain Damage in Rats](#). Press Release.

Quote: "The situation of the growing brain might deserve special concern," the study authors wrote, "since biological and maturational processes are particularly vulnerable. **We cannot exclude that after some decades of often daily use, a whole generation of users may suffer negative effects as early as middle age.**"

The full article is found at <http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1241519&blobtype=pdf>. See also [popular scientific article about the same issue](#).

- [Deep sleep, responsible for brain regeneration, disturbed](#) (2002). **Stage 4 sleep is disturbed** by mobile phone use. This sleep stage is important for full recuperation of brain and body. Study by Professor Achermann at Zürich University. See also the scientific report: ["Pulsed high-frequency electromagnetic fields affect brain physiology"](#).

Sources:

- Huber R., Treyer V., Borbély A., Schuderer J., Gottselig J., Landolt H.-P., Werth E., Berthold T., Kuster N., Buck A. and Achermann P. (2002) Electromagnetic fields, such as those from mobile phones, alter regional cerebral blood flow and sleep and waking EEG. *J. Sleep Res.* 11 289-295.
- [Radio frequency EM fields and brain physiology](#). The group has evidently been pressed to downplay their findings because as they say "conclusions about possible adverse effects on human health are premature as the underlying mechanisms of these non-thermal effects are unknown." **This is rubbish.** They have found important adverse effects but are not taking the consequences with the untenable excuse that they cannot explain why important sleep and behavioral disturbances occur.
- Regel S.J., Gottselig J.M., Schuderer J., Tinguely G., Rétey J.V., Kuster N., Landolt H.-P. and Achermann P. (2007) Pulsed radio frequency radiation affects cognitive performance and the waking electroencephalogram. *Neuroreport* 18, 803-807.
- ["Association of mobile phone radiation with fatigue, headache, dizziness, tension and sleep disturbance in Saudi population"](#), Thamer Al-Khlaiwi, Sultan A. Meo, Department of Physiology, College of Medicine, King Saud University, Riyadh, Kingdom of Saudi Arabia. (Oct 2003).

"we found a relationship between **headache, fatigue, dizziness, tension and sleep disturbances in subjects exposed to mobile phones emissions....**

the use of mobile phones is a risk factor for health hazards and we suggest that excessive use of mobile phones should be avoided"

- **Increased sleep disturbances and depression in mobile users.** Number of mobile phone calls and SMS messages per day were associated with sleep

disturbances. SMS use was also associated with symptoms of depression.

Source: Thomee, S. et al "Prevalence of perceived stress, symptoms of depression and sleep disturbances in relation to information and communication technology (ICT) use among young adults - an explorative prospective study." *Computers in Human Behavior*, Volume 23, Issue 3 (May 2007).

[Abstract](#)

• Mobile phones - a cause of stress burnout?

Dr Jaan Suurkula (PSRAST) has proposed that mobile phone usage may have contributed importantly to the great increase in stress burnout in recent years (1).

He noted that it has been established that deep sleep, so called stage four sleep, is important for the regeneration of the brain and the body.

He also noted that the increase of stress burnout has roughly paralleled the increased usage of mobile phones in Sweden.

He suggests that **failing regeneration of the brain due to disturbed sleep caused by mobile phone radiation may contribute to stress burnout.**

This is supported by the research of Professor Achermann in [Zürich University](#) (2002), later confirmed by [Professor Arnetz](#) (2008) at the Karolinska Institute, Stockholm, that indicates that **regenerative, deep sleep is disturbed or abolished by mobile phone usage.** Also other studies indicate that the microwave radiation from mobile phones as well as base stations (that emit exactly the same radiation) cause sleep disturbances.

It is also supported by the research by Dr. Mirjam Ekstedt that suggests that **sleep disturbances, especially of the deep sleep phases, contribute to burnout** (2).

References:

1. Suurkula J. (2008) "Mobile phone usage - a cause of stress burnout?" In manuscript.
 2. Ekstedt M et al, "Disturbed sleep and fatigue in occupational burnout." *Scand J Work Environ Health*. 2006 Apr;32(2):121-31. [Abstract](#)
- [Brain interactions with RF/microwave fields generated by mobile phones.](#) By Ross Adey, May 2003. This leading brain researcher summarizes the evidence of the influence of mobile phones on the brain.
 - [Cell phones and the brain.](#) By John D MacArthur. A research overview for laymen. (2002)

Base station affecting brain and health

• [Base stations affect health negatively.](#) Among people living closer than 300 m away from the base station, a French study found an increased incidence for **tiredness (within 300m), for headache, sleep disturbance, discomfort, etc (200 m). For irritability, depression, loss of memory, dizziness, libido decrease, etc (100 m).** Women significantly more often than men complained of headache, nausea, loss of appetite, sleep disturbance, depression, discomfort and visual perturbations.

This first study on symptoms experienced by people living in vicinity of base stations shows that, in view of radioprotection, **minimal distance of people from cellular phone base stations should not be < 300 m.**

Source: Santini R, et al, *Pathol Biol* (Paris). 2002 Jul;50(6):369-73. [Abstract](#)

• **Neurobehavioral effects among inhabitants around mobile phone base stations.** "Inhabitants living nearby mobile phone base stations are at **risk for developing neuropsychiatric problems and some changes in the performance of neurobehavioral functions**"

Source: Abdel-Rassoul G, et al, *Neurotoxicology*. 2006 Aug 1. [Abstract](#)

Bottom line

If you want to sleep well and remain vital, balanced, happy and effective, minimize your

[mobile phone usage](#) as recommended in our [guidelines](#).

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General articles

- [The Excluded Biology](#) by Dr Mae-Wan Ho. There is a significant amount of evidence demonstrating that electromagnetic phenomena are important in the regulation of bodily activities. This means that the electromagnetic radiation of mobile phones may disturb the function of brain and body according to Dr Ho. Recent observations indicating disturbance of brain waves and of sleep might be an expression of such a influence. Yet this aspect has commonly been neglected in the assessment of hazards.
- [Recent studies \(1995-2000\) on the biological effects of radiofrequency and cell phone radiation](#).
- [The Stewart Report](#) by Independent Expert Group on Mobile Phones. November 2000. This extensive analysis by *independent scientists* concludes that the precautionary people has to be applied considering the incompleteness of knowledge and the indications of possibly important biological effects at levels far below present allowed levels.
- [Mobile phone use: It's time to take precautions](#). The article quotes Dr Carlo, a highly respected epidemiologist who was employed by the mobile phone industry to "prove" that they were harmless. But he arrived at the opposite conclusion:

Quote: "Dr Carlo also said that he "was alarmed that parts of the industry have ignored the scientific findings suggesting potential health effects, have repeatedly and falsely claimed that wireless phones are safe for all consumers including children, and have created an illusion of responsible follow up by calling for and supporting more research".

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Environmental effects

The effects of mobile radiation on the environment have not yet been much researched. PSRAST finds that it cannot be excluded that, especially close to Base stations, there may, in the long run, occur genetic changes in plants, trees, microorganisms, insects and animals due to accumulated damage to the DNA (in addition to the reported cancer increase in humans). Below, we mention another possible complication:

- [Mobile Phones and Vanishing Bees](#). A study in England showed that bees refused to retrain to their beehives where there was a DECT cordless phone station. The DECT-station is a simple cordless phone base, widely used in homes and offices. It continuously emits the same radiation as mobile phones. It is discussed if the extensive use of mobile phones may be one reason why bee colonies are vanishing at a huge scale in Europe and the US.

Dr Mae-Wan Ho, biophysicist comments:

"But mobile phones have been around for close to 20 years, so why now? There has been a recent change in cell phone technology that coincides with the current crisis. At the beginning of the present century, 3G (third generation) mobile phone systems became publicly available, leading to a surge in popularity of mobile phones, and many more phone towers [11]. Bees are disappearing in North America, Europe and also Australia, wherever mobile phones are greatly in use."

Bees are vital pollinators for agriculture. With the vanishing of bees, a major food crisis could ensue. It is too early to definitely judge what is the cause of the present dramatic decrease of bee populations.

Dr. Joe Cummins, Professor Emeritus of Genetics, suggests that perhaps it is a combination of synergetically acting factors out of which mobile radiation is one. In addition, parasite infection, certain new pesticides used together with genetically engineered plants, and toxins generated by GE-plants have been found to harm the bees, see "[Mystery of Disappearing Honeybees](#)".

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Corrupt Science

A scientist who maintains that mobile phones are safe to use is either corrupt or seriously incompetent.

Increasing numbers of scientists serve corporate interests

Science has become dependent on corporate sponsorship to a considerable extent. Their influence is especially great in applied science. Corporations are misusing this dependence to promote their interests by **suppressing unfavorable evidence and distorting truth**. Leading scientists have been corrupted to promote corporations under the false disguise of "scientific objectivity".

One **especially powerful strategy** has been to *create "counterevidence" for every alarming discovery* so that it can be said that "the issue is controversial" and that "the scientists have disparate opinions" or that the effect is "not conclusively proven". Thereby restrictive legislation is delayed. The tobacco industry *sponsored important scientists to do this for several decades after it had been conclusively proven that smoking is harmful*, see for example [Lancet article by professor Stanton Glantz](#) (Jan 2005).

Outright falsifications of data by scientists, corrupted by corporations, have been revealed as well as cases where scientists have been forbidden by their sponsors to publish findings that would damage the interests of the corporation (naturally, very few cases are discovered and none has so far been revealed concerning microwave radiation research as far as we know, but this does not rule out an extensive corruption).

Therefore, considering the extensive evidence indicating that mobile phone radiation is harmful, it is justified to suspect that scientific reports that deny this are corrupt. Often the research has openly been sponsored by the mobile phone industry. In such cases there are especially strong reasons to question the reliability of the conclusions. Furthermore, the data may have been faked so as to suit the interests of the sponsor. In other cases there may be a hidden influence (read corruption) from the industry.

Billions of dollars at stake

The mobile phone corporations reap multibillion dollar profits, and would suffer billion dollar losses from research proving harmful effects. Therefore, they have a very strong incentive to corrupt scientists to offset the harmful impact of such research through critical remarks, like "questionable", "insufficient evidence" and "more research needed before conclusions can be drawn". It occurs regularly that even studies of high scientific quality are bluntly and unjustifiably dismissed in this way by such corrupt scientists.

Top scientists and research institutions may be corrupt

It is obvious that the corporations would especially try to corrupt renowned scientists and the most respected universities and research institutes as this would have the greatest impact. So such merits are by no means a warranty for a reliable and impartial judgement.

A bribe of a few, or even ten million dollars, is small money considering what is at stake. If direct bribing would not work, *another effective means to ensure "cooperation" is to offer support for the purchase of expensive research equipment* that would put the scientist or research institute in a world leading position.

Undesirable research can easily be suppressed

Research that yields "undesirable" results can be suppressed by *threatening to withdraw corporate sponsoring of research institutes and universities*. Or *considerable sums can be offered* for the same purpose to institutes that are not yet dependent on their support.

If you are in doubt, please consider the case of Dr Carlo, mentioned above. It demonstrates very clearly that the corporations not only ignore, but suppress unfavorable safety assessments, see [Dr Carlo](#).

Needless to say, the corporations have strong incentives to bribe key politicians and decisionmakers as well to ensure full "strategic coverage" of their field of interest.

Documents about the corruption of science

- **Survey suggests research misconduct is common.** The survey found that research misconduct is more common than previously suspected in US research institutions. In a survey of 2,212 mainly biomedical scientists at 605 universities and other research institutions, 9 percent of scientists said that they had seen fabrication, falsification or plagiarism. The survey also showed that researchers are very reluctant to report bad conduct, which means that the real extent of misconduct might be much larger.

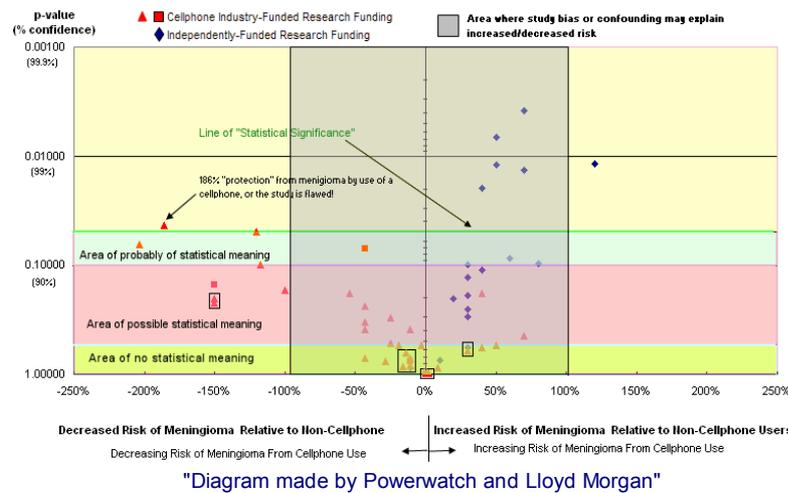
"There's more misconduct, or potential for misconduct, out there than probably anyone has appreciated before. And a good part of that goes unreported."

James Wells, director of the Office of Research Policy at the University of Wisconsin who helped conduct the survey."

Source: [Reuters Jun 19, 2008](#)

- **Remarkable industry bias in brain tumor research.** A study made by Powerwatch

discovered remarkable differences between independent and industry funded research in favor of industry interests. A few industry funded studies absurdly indicated a 186% protective effect. It seems that the researchers, in their ambition to please their sponsors, went too far in falsifying the evidence as there are no reasons whatsoever to believe that the radiation could protect against tumors in any case, especially as a large majority of studies indicate the opposite. See the image below, where the protective effect study is the red triangle to the left at the arrowpoint.



[Click here](#) or on the picture to enlarge

Also the article points out serious errors in the industry funded research of such a magnitude and nature that it seems unlikely that the scientists were so incompetent. The more likely conclusion is that they have been "encouraged" to omit important considerations by the funding industry. A more and more common practice is that the industry just buys the name of some respectable scientist and writes the article on its own. One scientist in the field of genetic engineering who protested against not being allowed to see the research data underlying the article which he was expected to sign, lost his job after pressure on the university from the industry (universities are increasingly economically dependent on industrial sponsorship).

Source: [Powerwatch: Bias and confounding.](#)

- The late professor Ross Adey has made thoughtful comments on this issue:

Quote: "In many countries, and particularly in the USA, *the effects of such harassing and troublesome tactics on independent, careful fundamental research have been near tragic.* Beguiled by health hazard research as the only source of funding, accomplished basic scientists have diverted from a completely new frontier in physical regulation of biological mechanisms at the atomic level [we think he means *bequiled from*, that is, the scientists have been deprived of this only source of funding /editors comment]. *Not only have governments permitted corporate interests in the communications industry to fund this research, they have even permitted them to determine the research questions to be addressed and to select the institutions performing the research.*"

Source: "[REFLEX report shows that mobile phone radiation damages living cells](#)". Foreword by Ross Adey

- A recent book "[Trust us, we are the experts](#)", gives an illuminating picture of how corporations manipulate and distort truth in order to promote their interests.

Quote: In 1999 Drummond Rennie, editor of JAMA [Journal of American Medical Association, a world leading medical publication], said private funding of medical research was causing "a race to the ethical bottom.... *The behavior of universities and scientists is sad, shocking, and frightening.*" Rennie said. "They are seduced by industry funding, and frightened that if they don't go along with these gag orders, the money will go to less rigorous institutions," he said. (pg. 217)

- [Dysfunctional science](#) - Towards a "pseudoscientific world order"?

Quote: *The successful launch of genetically engineered foods with the aid of a useless safety assessment principle endorsed by leading scientists in national and international expert committees is a very serious warning signal. It indicates that we may already be well on the way towards a "new pseudo-scientific world order" where the short term interests of powerful industrial corporations override global long term ecological and health safety considerations.*

- [The New Thought Police - Suppressing Dissent in Science](#). By Mae-Wan Ho and Jonathan Mathews at Institute of Science in Society (ISIS). Their article further confirms and extends the tenets presented in the above article.

Quote: "... Our academic institutions have given up all pretence of being citadels of higher learning and disinterested enquiry into the nature of things; least of all, of being guardians of the public good. The corporate take over of science is the greatest threat to our survival and the survival of our planet. It must be resisted and fought at every level."

- [The Corporate Corruption of Science](#).

Quote:"...science is now routinely at the center of controversies where economic incentives to influence scientific opinion toward a consensus favorable to commercial interests are often irresistibly large. Without effective reforms, this may well lead to the neutralization of science..."

- [Scientists Identify Corporate Structure as Bad for Public Health](#)

Quote: "Corporate power is a major cause of health problems, according to the October/December 2005 special issue of the International Journal of Occupational and Environmental Health. Contributions to the issue reveal how corporate structure results in pressure to influence science and place the public at risk..."

- [PR strategies used to manipulate opinions...](#) An illustrative case. The story is essentially the same in the case of mobile phones.

Quote: "Modern corporate propaganda involves purchasing scientific opinions and planting them in scientific journals (without, of course, mentioning the money connection to the corporate benefactor)."

Bottom line

Considering the extensive evidence of harmful effects of mobile phones, ***there are good reasons to suspect that scientists and scientific reports denying or downplaying the hazards of mobile phones are corrupt, however renowned the university or famous the scientist may be.***

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Literature

- ["Cellular Telephone Russian Roulette: A Historical and Scientific Perspective"](#). Robert C Kane, former researcher at Motorola.

Quote: "We know today that even one single exposition to a low dose of radiation from a mobile phone will bring about DNA damage in brain cells."

"Repeated damage or irritation in a certain biological zone, for example a small region in the brain may lead to irreparable damage."

- ["Cell phones: Invisible hazards in the wireless age: An Insider's Alarming Discoveries about Cancer and Genetic Damage."](#) (link to Amazon.com). Dr. George Carlo and Martin Schram. ISBN 00786708182. Carroll & Graf 2000.

Quote:"...with medical science indicating increased risks of tumors, cancer, genetic damage and other health problems from the use of cellphones, the government and the cellphone industry have abandoned the public."

Recensions and interviews:

- [Common Ground](#). A good summary of the key points.
- [Happy habitat](#). An interview about the book with Dr Carlo.

To the website of Dr Carlo: "[SafeWireless initiative](#)"

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Links

- [Powerwatch](#). A good source about problems with electromagnetic radiation of all kinds.
- [Council on Wireless Technology Impacts - good scientific research list.](#)
- [IEGMP, Independent Expert Group on Mobile Phones](#)
- [EM facts](#). On Health Hazards with mobile phones and other kinds of electromagnetic radiation.
- [EMF health Report](#). An on-line journal on EMF problems.

- [Bener Digest Update](#). Scientific studies. 06:24 19.01.2009
- [Electric words](#). A list on mobile phone safety research.
- [Cell Phones & Health](#). List of some scientific studies.
- ["The EMF Safety Superstore"](#)
- [EMR network](#), Citizens and professionals for Responsible use of Electromagnetic Radiation.
- [The Swedish Association for the Electrosensitive \(English language edition\)](#).
- To our webpages "[Genetically engineered foods - safety problems](#)"

Email: mobil[at]psrast.org.

NOTE: This address is not for personal questions about mobile phones. It is meant for scientists, physicians and journalists. You cannot count upon any reply unless you belong to anyone of these categories.