

Warning: Using a mobile phone while pregnant can seriously damage your baby



Study of 13,000 children exposes link between use of handsets and later behavioural problems



MercyCorps

Emergency Response Appeal

By Geoffrey Lean
ENVIRONMENT EDITOR

Women who use mobile phones when pregnant are more likely to give birth to children with behavioural problems, according to au-

RISING HEALTH RISK

» Exposing children to mobile phones during pregnancy and early childhood may increase the risk of behavioural problems

» Exposure in pregnancy may increase the risk by...

» Childhood use may increase the risk by...

that could cause them. But when they tried to explain them by accounting for other possible causes – such as smoking during pregnancy, family psychiatric history or socio-economic status – they found that,

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A giant study, which surveyed more than 13,000 children, found that using the handsets just two or three times a day was enough to raise the risk of their babies developing hyperactivity and difficulties with conduct, emotions and relationships by the time they reached school age. And it adds that the likelihood is even greater if the children themselves used the phones before the age of seven.

The results of the study, the first of its kind, have taken the top scientists who conducted it by surprise. But they follow warnings against both pregnant women and children using mobiles by the official Russian radiation watchdog body, which believes that the peril they pose "is not much lower than the risk to children's health from tobacco or alcohol".

The research - at the universities of California, Los Angeles (UCLA) and Aarhus, Denmark - is to be published in the July issue of the journal *Epidemiology* and will carry particular weight because one of its authors has been sceptical that mobile phones pose a risk to health.

UCLA's Professor Leeka Kheifets - who serves on a key committee of the International Commission on Non-Ionizing Radiation Protection, the body that sets the guidelines for exposure to mobile phones - wrote three and a half years ago that the results of studies on people who used them "to date give no con-



sistent evidence of a causal relationship between exposure to radiofrequency fields and any adverse health effect".

The scientists questioned the mothers of 13,159 children born in Denmark in the late 1990s about their use of the phones in pregnancy, and their children's use of them and behaviour up to the age of seven. As they gave birth before mobiles became universal, about half of the mothers had used them infrequently or not at all, enabling comparisons to be made.

They found that mothers who did use the handsets were 54 per cent more likely to have children with

behavioural problems and that the likelihood increased with the amount of potential exposure to the radiation. And when the children also later used the phones they were, overall, 80 per cent more likely to suffer from difficulties with behaviour. They were 25 per cent more at risk from emotional problems, 34 per cent more likely to suffer from difficulties relating to their peers, 35 per cent more likely to be hyperactive, and 49 per cent more prone to problems with conduct.

The scientists say that the results were "unexpected", and that they knew of no biological mechanisms

sociation with mobile phone use got even stronger.

They add that there might be other possible explanations that they did not examine - such as that mothers who used the phones frequently might pay less attention to their children - and stress that the results "should be interpreted with caution" and checked by further studies. But they conclude that "if they are real they would have major public health implications".

Professor Sam Milham, of the blue-chip Mount Sinai School of Medicine in New York, and the University of Washington School of Public Health - one of the pioneers of research in the field - said last week that he had no doubt that the results were real. He pointed out that recent Canadian research on pregnant rats exposed to similar radiation had found structural changes in their offspring's brains.

The Russian National Committee on Non-Ionizing Radiation Protection says that use of the phones by both pregnant women and children should be "limited". It concludes that children who talk on the handsets are likely to suffer from "disruption of memory, decline of attention, diminishing learning and cognitive abilities, increased irritability" in the short term, and that longer-term hazards include "depressive syndrome" and "degeneration of the nervous structures of the brain".

ists, and guides, who are no longer allowed to accompany visitors into the crypt except in pairs.

Last Friday two members of the cathedral's ruling body, the Chapter, visited mother of four and grandmother of 11 Mrs Hayter at home.

She says they told her she had 'usurped' their trust by using Flower Guild notepaper for a letter highlighting her campaign.

Mrs Hayter said: 'It was quite a fighting letter asking people to stand shoulder to shoulder but there are people within the cathedral who are writing their own rules here.'

The Chapter of Gloucester Cathedral said it has 'accepted the resignation of Mrs Annabel Hayter' and is 'conscious of the enormous commitment, generosity and creativity Mrs

FROM THE MAIL, NOVEMBER 20

Hayter has brought to the role'. It added: 'The Chapter fully appreciates that there are those who are not in sympathy with its policy on CRB checks for volunteers.'

'However, Mrs Hayter took a prominent role in campaigning publicly against the Chapter's current policy and, in a letter to Flower Guild members sent on November 29, encouraged other volunteers to refuse to comply with future CRB checks. Mrs Hayter has accepted that her campaigning activities are incompatible with her role as chairman of the Guild.'

The Manifesto Club which campaigns against the regulation of everyday life and has been supporting the flower arrangers' stand, said: 'Even by the standards of today's

COME INTO CONTACT WITH CHILDREN began in earnest after the Soham murder of two children by school caretaker Ian Huntley.

The system was developed by Labour into the Vetting and Barring Scheme designed to register 11million individuals, from school crossing patrolmen to plumbers and electricians working in schools.

Following protests, the Home Office announced it was seeking to limit the scope of the scheme by working on the principle that people are safe to work with children unless there is clear evidence that this is not the case.

Sports clubs, Scouts and Guides and NHS Boards have all lost helpers who refused the checks in protest at having their private lives examined, and because of the form-filling and costs involved.



Stalwart: Mrs Hayter has been flower arranging for 40 years

Mobiles warning for mums-to-be

By Jenny Hope
Medical Correspondent

PREGNANT women who regularly use mobile phones could increase the risk of their children behaving badly, claims a startling survey.

If their offspring then start using the devices at an early age, the chance of problems climbs to 50 per cent, according to researchers.

They found those exposed to mobile phones in the womb had a 30 per cent rise in behavioural difficulties at the age of seven.

But those exposed before birth and in their childhood, were 50 per cent more likely to have behavioural problems than those exposed to neither.

Children who used mobiles, but were not exposed in the womb, were 20 per cent more likely to display abnormal behaviour.

The findings by researchers in California are likely to reinforce warnings that children should not use mobile phones.

However, some British scientists were sceptical, saying the findings may be due to lifestyle factors rather than mobiles.

In the study of 29,000 youngsters, mothers provided details of their

HOW SAFETY TIPS ARE BURIED IN THE MANUALS

MOBILE phone giants are aware of the health risks to mothers-to-be and others of using them but warnings are buried in small print.

The best-selling iPhone advises users to keep it 'at least 15mm away from the body' but the guidance is deep inside the manual.

The safety information issued with BlackBerry handsets, such as the best-selling Torch, goes further but is also hard to find.

It says people should use the hands-free option or keep it an inch from the body 'including the abdomen of pregnant women and the lower

abdomen of teenagers'. Other firms, including Nokia and HTC, have advice to keep the handsets away from the body. However, this is also generally buried in user manuals.

The safety information is designed to limit radio frequency exposure in line with limits set by authorities in the U.S. and Europe.

Alasdair Phillips, director of the Powerwatch pressure group, has held talks with the Health Protection Agency on the issue.

The Mobile Manufacturers Forum said the devices are proven to be safe if used correctly.

while around a third of children were using a mobile phone by the age of seven.

The findings published in the *Journal of Epidemiology and Community Health* mirrored an earlier study by the survey team.

Researcher Dr Leeka Kheifets said both sets of results 'demonstrated that cell phone use was associated with behavioural problems at age seven years'.

The scientists said social factors, such as mothers paying more attention to mobiles than their

lifestyle, diet and environment during and after pregnancy.

Information on their children's health and mobile phone use was also recorded. Around three per cent of children scored abnormal on behavioural issues, with another three per cent 'borderline'.

The study found that more than 10 per cent of children exposed to mobile phones in the womb had mothers who spoke on them at least four times a day.

Nearly half of the mothers had their phones turned on at all times

could affect an unborn baby. She said: 'Exposure to radiofrequency radiation from mobile phones is highly localised to the part of the head closest. There is no evidence to suggest that other parts of the body are affected.'

'We also have no evidence that a pregnant mother's behaviour is related to her mobile phone use and thereby affecting her baby.'

Professor David Spiegelhalter, from the University of Cambridge, was also 'sceptical' of the results.

He said: 'One finding is that very young children who use mobile phones show more behavioural disorders. But is it plausible that the first causes the second?'

Professor David Coggon, from the University of Southampton, said: 'The pattern of results suggests the increase in behavioural problems may have been caused by factors other than mobile phone use.'

In May, the largest study of its kind said that using a mobile does not appear to increase the risk of certain types of brain cancer.

The International Agency for Research on Cancer analysed data for more than 10,000 people and found no link between years of use and risk.

blood brain barrier → fetus → neuropsychiatric problems

ARTICLE FOR SUBMISSION TO:
BRITISH JOURNAL OF PSYCHIATRY

Comments on
the pages
P3

OPINION

Are we about to face a pandemic of mental illness and (mostly childhood) suicides?

During the Cold War, I spent a considerable amount of time de-briefing spies. My particular forte was stealth microwave warfare, from my military training in microwaves. I learned that continuous low-level microwaves could affect your brain function, as well as some of the body's physiological processes.

At this time, a US Government document warned that very low-level (below thermal) microwaves may cause depressive illnesses and allow neurotoxins to cross the blood-brain barrier, which could lead to severe neuropathological symptoms. (1)

In the year 2000, Professor Salford at Lund University in Sweden showed that pulsing (modulating) low-level microwaves could alter the permeability of the blood-brain barrier. (2) By this time, with my own list of some 30 different pulse frequencies known to cause an array of psychological and physiological conditions, I produced two flow charts, showing the knock-on effect throughout the brain and body (with the aid of about fifty referenced documents). (3)

As mobile phones, their transmitters and all similar devices swept across the world, Psychiatrists, GP's and Consultants started to notice an increase in behavioural problems, physical conditions and brain degenerative diseases.

The Freiburger Appeal was established, now signed by thousands of consultants, doctors, scientists, etc., listing a series of ailments, which they deduced were caused by pulsed, low-level microwaves. Exacerbating this is the Fenton Reaction, where microwaves react with peroxide (in small quantities within the body, usually from drinks) in the presence of iron. This depletes the iron content of the brain/body, causing a possible increase in the risk of neurodegenerative diseases. (4i) (4ii)

More recently Melinda Wenner has published research (5) suggesting that the blood-brain barrier within a foetus may allow microbes to cross it if the immune system is compromised. She does not specifically mention microwaves, but it is not difficult to find research carried out around mobile transmitters which show microwave syndrome as a regular feature. (6) One of the first symptoms of microwave syndrome is usually suppression of the immune system. Melinda Wenner lists schizophrenia, OCD, bi-polar, autism, Alzheimer's and Tourettes as either prenatal or postnatal possibilities.

Clearly, not everyone exposed to microwaves will be susceptible, just as not everyone who smokes will become ill.

(4) Mitochondria in Girls - P8 Sci
Possibly the most frightening - - - genetic damage

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Mutation Research xxx (2006) xxx–xxx



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Cell death induced by GSM 900-MHz and DCS 1800-MHz mobile telephony radiation

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Received 21 April 2006; received in revised form 8 August 2006; accepted 28 August 2006

Abstract

In the present study, the TUNEL (Terminal deoxynucleotide transferase dUTP Nick End Labeling) assay – a well known technique widely used for detecting fragmented DNA in various types of cells – was used to detect cell death (DNA fragmentation) in a biological model, the early and mid stages of oogenesis of the insect *Drosophila melanogaster*. The flies were exposed *in vivo* to either GSM 900-MHz (Global System for Mobile telecommunications) or DCS 1800-MHz (Digital Cellular System) radiation from a common digital mobile phone, for few minutes per day during the first 6 days of their adult life. The exposure conditions were similar to those to which a mobile phone user is exposed, and were determined according to previous studies of ours [D.J. Panagopoulos, A. Karabarbounis, L.H. Margaritis, Effect of GSM 900-MHz mobile phone radiation on the reproductive capacity of *D. melanogaster*, *Electromagn. Biol. Med.* 23 (1) (2004) 29–43; D.J. Panagopoulos, N. Messini, A. Karabarbounis, A.L. Philippetis, L.H. Margaritis, Radio frequency electromagnetic radiation within “safety levels” alters the physiological function of insects, in: P. Kostarakis, P. Stavroulakis (Eds.), *Proceedings of the Millennium International Workshop on Biological Effects of Electromagnetic Fields*, Heraklion, Crete, Greece, October 17–20, 2000, pp. 169–175, ISBN: 960-86733-0-5; D.J. Panagopoulos, L.H. Margaritis, Effects of electromagnetic fields on the reproductive capacity of *D. melanogaster*, in: P. Stavroulakis (Ed.), *Biological Effects of Electromagnetic Fields*, Springer, 2003, pp. 545–578], which had shown a large decrease in the oviposition of the same insect caused by GSM radiation. Our present results suggest that the decrease in oviposition previously reported, is due to degeneration of large numbers of egg chambers after DNA fragmentation of their constituent cells, induced by both types of mobile telephony radiation. Induced cell death is recorded for the first time, in all types of cells constituting an egg chamber (follicle cells, nurse cells and the oocyte) and in all stages of the early and mid-oogenesis, from germarium to stage 10, during which programmed cell death does not physiologically occur. Germarium and stages 7–8 were found to be the most sensitive developmental stages also in response to electromagnetic stress induced by the GSM and DCS fields and, moreover, germarium was found to be even more sensitive than stages 7–8.

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Keywords: Mobile telephony radiation; RF; GSM; DCS; Cell death; DNA fragmentation; Electromagnetic fields; *Drosophila*; Oogenesis

1. Introduction

There are three forms of cell death *viz.* apoptosis, autophagic cell death and necrosis [4,5]. Apoptosis is genetically controlled and plays a vital role in normal development. It is referred to as programmed cell death

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Designed to look into the contrasting scientific opinion on the effects of mobile phone originating EMF on cellular tissues, a team from Pakistan led by Nusrat Zareen investigated the effects of exposing fertilized chicken eggs to a ringing mobile phone at different stages of development. Their findings were a statistically significant difference between experimental and control embryos with regards to retinal growth and pigmentation of the epithelium, concluding that EMF emitted by a mobile phone cause derangement of chicken embryo retinal differentiation.

ovarian
n-wifi

4. [P] Gul A et al, (February 2009) *The effects of microwave emitted by cellular phones on ovarian follicles in rats*, Arch Gynecol Obstet. 2009 Feb 25. [Epub ahead of print] [View Comments and Links] [View on Pubmed]

ok

Another paper from Turkey looking at *in vivo* effects of mobile phone based RF on rats, this time from the Yuzuncu Yil University in Van, has published a paper showing that the ovaries of females by the radiation. They used 39 rats in the control group and 43 rats in the study group, which they exposed to 15 minutes of a mobile phone in talk mode (and 11 hours 45 minutes in standby mode) for each 12 hour cycle over 21 days. Their findings were statistically significant, leading them to "suggest that intrauterine exposure has toxic effects on ovaries", and conclude that that "the microwaves of mobile phones might decrease the number of follicles in rats by several known and, no doubt, countless unknown mechanisms".

5. [P] Kundi M, Hutter HP, (March 2009) *Mobile phone base stations-Effects on wellbeing and health*, Pathophysiology. 2009 Mar 2. [Epub ahead of print] [View Comments and Links] [View on Pubmed]

Michael Kundi of the Medical University of Vienna (and co-author of the BioInitiative report) has published a paper assessing the current situation on the effects of mobile phone base stations on wellbeing and health. Highlighting the explicit discouragement of further work into this area by the WHO International EMF Project and COST 281, he highlights the possibility that this advice is unreasonable and that investigation of these issues is urgent in the light of the sparse existing evidence which demonstrates the possibility of a significant health risk. He concludes that "The difficulties of investigating long-term effects of base station exposure have been exaggerated, considering that base station and handset exposure have almost nothing in common both needs to be studied independently. It cannot be accepted that studying base stations is postponed until there is firm evidence for mobile phones."

6. [P] Budak GG et al, (March 2009) *Effects of intrauterine and extrauterine exposure to GSM-like radiofrequency on distortion product otoacoustic emissions in infant male rabbits*, Int J Pediatr Otorhinolaryngol. 2009 Mar;73(3):391-9. Epub 2008 Dec 23 [View Comments and Links] [View on Pubmed]


This is another Turkish *in vivo* paper, this one by Gurer Budak of the Nanomedicine Research Laboratory in Ankara, measured the effects of simulated GSM 1800 RF exposure on the hearing function of juvenile rabbits. They separated the rabbits into 4 groups: control, exposed for the first 14 days of life, exposed for the last 7 days of gestation, and exposed both in gestation and for the first 14 days of life. Their findings were that, for those rabbits in both groups exposed in the first 14 days of life, a significant increase in hearing impairment when compared to the control group and the group exposed only before birth. They concluded that "Harmful effects of RF are mainly observed as a decrease in DPOAE amplitudes at 4.0-6.0 kHz during extrauterine exposure in infancy. During the intrauterine period, the water content of

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1: Arch Gynecol Obstet. 2009 Feb 25. [Epub ahead of print]

 SpringerLink Links**The effects of microwave emitted by cellular phones on ovarian follicles in rats.****Gul A, Celebi H, Uğraş S.**

Animal Research Laboratory in the Faculty of Medicine, Yuzuncu Yil University, 65200, Van, Turkey, Azizgul68@hotmail.com.

OBJECTIVE: The aim of this study was to investigate whether there were any toxic effects of microwaves of cellular phones on ovaries in rats. **METHODS:** In this study, 82 female pups of rats, aged 21 days (43 in the study group and 39 in the control group) were used. Pregnant rats in the study group were exposed to mobile phones that were placed beneath the polypropylene cages during the whole period of pregnancy. The cage was free from all kinds of materials, which could affect electromagnetic fields. A mobile phone in a standby position for 11 h and 45 min was turned on to speech position for 15 min every 12 h and the battery was charged continuously. On the 21st day after the delivery, the female rat pups were killed and the right ovaries were removed. The volumes of the ovaries were measured and the number of follicles in every tenth section was counted. **RESULTS:** The analysis revealed that in the study group, the number of follicles was lower than that in the control group. The decreased number of follicles in pups exposed to mobile phone microwaves suggest that intrauterine exposure has toxic effects on ovaries. **CONCLUSION:** We suggest that the microwaves of mobile phones might decrease the number of follicles in rats by several known and, no doubt, countless unknown mechanisms.

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COMMENTARY

MAPK activation by radio waves

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In this issue of the *Biochemical Journal*, Friedman et al. report the findings of a study to look at the potential of mobile phones to activate intracellular signalling cascades. They found that radio waves corresponding to the frequency commonly used by mobile phones are able to activate ERK1/2 (extracellular-signal-regulated kinases 1 and 2). This effect was observed even at intensities lower than those emitted by mobile phones that are unable to cause any measurable heating effects. This study provides evidence that

radio waves induce ERK1/2 activation downstream of the EGF (epidermal growth factor) receptor, which is in turn activated by the release of reactive oxygen species.

Key words: extracellular-signal-regulated kinase (ERK), mitogen-activated protein kinase (MAPK), mobile phone, reactive oxygen species, ultra-high frequency radio wave (UHF radio wave).

Over the last 10 to 15 years, there has been a large increase in the use of mobile phones, and more recently in wireless computer networks. These networks transmit information using either the UHF (ultra-high frequency; 300 MHz to 3 GHz) or SHF (super-high frequency; 3 GHz to 30 GHz) sections of the electromagnetic spectrum, and this has raised controversial questions about the safety of this technology, particularly with regard to its potential to induce cancer. If UHF waves are able to induce pathology, it would be predicted that they would be able to directly affect biological systems. The mechanism by which they would do this is, however, unclear. High intensities of UHF radio waves can cause measurable heating effects in biological tissues; however, this requires a much higher intensity of UHF waves than is used by wireless technology. The ability of other electromagnetic waves, such as X-rays and UV light, to cause DNA damage and promote tumorigenesis has been well documented. Both X-rays and UV light, however, have much higher frequencies than UHF waves, and as a result carry considerably more energy. In the case of X-rays and UV radiation, this energy is sufficient to break chemical bonds in DNA; however, it has been calculated that radio waves carry insufficient energy to do this [1,2]. Consistent with this, radio waves have been reported to be unable to directly cause DNA damage, and studies on the effect of radio waves on tumour formation in rodents have failed to show any consistent association between exposure to radio waves and tumours [1,2].

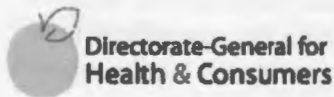
Is it possible then that UHF waves could have effects on cells at levels that do not induce thermal effects? In this issue of the *Biochemical Journal*, Friedman et al. [3] show that UHF radio waves are able to induce activation of the Raf–MEK1/2 [MAPK (mitogen-activated protein kinase)/ERK (extracellular-signal-regulated kinase) kinases 1/2]–ERK1/2 signalling cascade. The ERK1/2 cascade is the archetypal member of the MAPK cascades, a group that also includes the p38 and JNK (c-Jun N-terminal kinase) cascades. The ERK1/2 cascade has been studied extensively, and it is known to be activated by a variety of stimuli, including growth factors [such as EGF (epidermal growth factor)], mitogens and oxidative stress. ERK1/2 is involved in the regulation of many cellular processes, including proliferation, survival and differentiation, whereas mutations that cause constitutive activation of this cascade are implicated in

several cancers [4,5]. Friedman et al. [3] found that irradiation of either Rat1 or HeLa cells using radio waves in the frequency range 80–950 MHz was able to induce a transient activation of ERK1/2 that peaked after 10 min of stimulation. The intensity of UHF radiation used in these experiments was lower than that emitted by most mobile phones, and was found not to affect the temperature of the media. In contrast with the activation of ERK1/2, no activation of p38 or JNK activation was observed after short-term irradiation, although in line with some previous reports some p38 and JNK was observed following an irradiation of several hours [6,7].

As expected, the activation of ERK1/2 by UHF radio waves was inhibited by PD098059, an inhibitor of the upstream MEK1/2 kinases. The authors showed further that the activation of ERK1/2 was blocked by AG1478, an inhibitor of the EGF receptor. EGF is well known for its ability to activate ERK1/2, and it is likely that the molecular details of ERK1/2 activation downstream of the EGF receptor in response to UHF radiation are similar to that in response to EGF. This, however, raises the question of how UHF radiation is able to activate the EGF receptor. The authors suggest that this is due to an ability of UHF radio waves to induce reactive oxygen species, since ERK activation was blocked by the reactive oxygen scavenger NAC (*N*-acetylcysteine). The authors propose that reactive oxygen species are able to activate matrix metalloproteinases. These are then able to cleave proHb-EGF (pro-heparin-binding EGF) expressed on the cell surface. This then releases Hb-EGF into the media, from where it is then able to activate the EGF receptor. As observed by the authors, components of this mechanism have been shown to be involved in the activation of ERK1/2 by hydrogen peroxide or G-protein-coupled receptors. The activation of MAPKs by ionizing radiation has also been suggested to occur through a similar mechanism [8]. This is, however, the first time this pathway has been shown to act downstream of UHF radio waves. The authors suggest further that the molecular target of UHF radio waves may be a membrane-bound NADH oxidase, the activation of which would promote the generation of reactive oxygen species. Further work, however, is needed to fully characterize the details of this process.

Given that UHF waves can induce MAPK activation, what implication does this have for the safety of mobile phone use?

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Report of the workshop on EMF and Health: Science and Policy to address public concerns

On February 11-12, 2009, the European Commission held a 1.5 day workshop on *EMF and Health: Science and Policy to Address Public Concerns*. The workshop was attended by more than 180 people. Reflecting the high interest generated by this issue, attendance would have been far higher (~250) had the venue been larger.

Participants came from all over Europe, but also from the USA, Canada, Japan and Israël. Other countries were represented by contact offices based in Brussels.

The main stakeholders were represented and participation was balanced: mobile telecoms industry, power transmission industry, WHO as well as representatives for standardisation, occupational health, user organisations, concerned citizens, academia and regulators.

The aim of the workshop was to generate conclusions that help orient the EU policy process regarding electromagnetic fields by means of a broad and constructive dialogue among all stakeholders.

The workshop was opened by Ms Paola Testori-Coggi, Deputy Director General of the European Commission Directorate General for Health and Consumers (DG SANCO). She noted that the workshop was timely and that it addressed a highly sensitive issue both in the EU and internationally. She noted that a protective EU regulatory framework is already in place and that exposure measurement remains a weak point.

The workshop programme and presentations are available online at:
http://ec.europa.eu/health/ph_risk/ev_20090211_en.htm?e

- Session 1 ("The current EU regulatory framework")

Ms Caroline Lucas, MEP, opened the session by referring to the 2008 resolution by the EP calling for a revision of the Council Recommendation 1999/519/EC and by informing the participants that the EP is drafting an own initiative report on EMF (Rapporteur: Ms Ries).

The presentations then described the current relevant EU legislation and product standards. The first presentation, given by Laurent Bontoux of DG SANCO, gave an overview of the Council Recommendation 1999/519/EC on the limitation of the exposure of the general public to electromagnetic fields (0 Hz – 300 GHz) and of the level of precaution embedded in it. It also gave an overview of Commission Communication COM (2000)1, explaining the position of the European Commission on the precautionary principle. Mark Bogers, from DG ENTR gave the second presentation and described in detail the EU Directives dealing with

1. The importance of technical standards.
2. The crucial importance of trust in this issue and the need to (re)build it for a very concerned fraction of the public.
3. To this end, the importance for expert bodies to follow strict criteria regarding transparency, the mandates they respond to, conflicts of interest, membership, expertise, process, openness to stakeholders and independence was raised.
4. The importance of the quality of scientific evidence.
5. The importance of being able to offer help to the people who feel affected by EMF, in spite of the consistent failure of scientific studies to make a link between their symptoms and actual exposure to EMF.
6. More research is needed, whenever possible fully funded by public authorities to avoid the deficit of trust brought by industry funding.
7. The BioInitiative Group announced that they would publish peer-reviewed papers regarding their process.

- Conclusions

Mr A. Rys, Director for Public Health and Risk Assessment at DG SANCO then drew some conclusions for the workshop. The main take home messages were that:

- this issue goes beyond the borders of the EU and requires international collaboration;
- in spite of the mass of scientific evidence already available, more scientific research is still needed to address the remaining data gaps, in particular cohort studies;
- it is important to give a mandate to the SCENIHR to formulate research advice that is more specific than what is available in its latest opinion; it is also necessary to gather information about research programmes supported by Member States and industry; *
- the distinction between risk assessment and risk management must be made clear and maintained in the decision-making process;
- it is important not to forget to take the risk/benefit equation into account in the application of the Precautionary Principle;
- the protection of young children and pregnant women be always ensured; *
- politicians must fulfil their roles and industry must cooperate with them;
- communication to the public in general about EMF, and consumer information on products emitting EMF in particular, is very important;
- the MRI issue should be resolved quickly;
- people declaring themselves electro-hyper-sensitive need help, independently of the question whether their symptoms can be attributed to exposure to EMFs;

Effect of cell phone usage on semen analysis in men attending infertility clinic: an observational study

Ashok Agarwal, Ph.D., H.C.L.D.,^a Fnu Deepinder, M.D.,^a Rakesh K. Sharma, Ph.D.,^a Geetha Ranga, Ph.D.,^b and Jianbo Li, Ph.D.^c

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Objective: To investigate the effect of cell phone use on various markers of semen quality.

Design: Observational study.

Setting: Infertility clinic.

Patient(s): Three hundred sixty-one men undergoing infertility evaluation were divided into four groups according to their active cell phone use: group A: no use; group B: <2 h/day; group C: 2–4 h/day; and group D: >4 h/day.

Intervention(s): None.

Main Outcome Measure(s): Sperm parameters (volume, liquefaction time, pH, viscosity, sperm count, motility, viability, and morphology).

Result(s): The comparisons of mean sperm count, motility, viability, and normal morphology among four different cell phone user groups were statistically significant. Mean sperm motility, viability, and normal morphology were significantly different in cell phone user groups within two sperm count groups. The laboratory values of the above four sperm parameters decreased in all four cell phone user groups as the duration of daily exposure to cell phones increased.

Conclusion(s): Use of cell phones decrease the semen quality in men by decreasing the sperm count, motility, viability, and normal morphology. The decrease in sperm parameters was dependent on the duration of daily exposure to cell phones and independent of the initial semen quality. (Fertil Steril® 2008;89:124–8. ©2008 by American Society for Reproductive Medicine.)

Key Words: Cell phone, electromagnetic radiations, sperm parameters, male infertility

Cell phones have become indispensable devices in our daily life. These phones operate between 400 MHz and 2000 MHz frequency bands and emit radiofrequency electromagnetic waves (EMW). Reports of potential adverse effects of radiofrequency EMW on brain, heart, endocrine system, and DNA of humans and animals are widely reported in the literature. Electromagnetic waves alter brain electroencephalographic activity and cause disturbance in sleep (1); cause difficulty in concentration, fatigue, and headache (2); and increase reaction time in a time-dependent manner (3). They increase the resting blood pressure (4) and reduce the production of melatonin (5). They are also implicated in DNA strand breaks (6). However, the concern that cell phone use might have

adverse impacts on the semen quality has not been extensively addressed.

Infertility affects approximately 15% of couples of reproductive age, and with nearly half of these cases resulting from male factor infertility this area of research is of great interest to both physicians and research scientists (7, 8). The relationship between cell phone use and male infertility remains unclear. Harmful EMW emitted from cell phones may interfere with normal spermatogenesis and result in a significant decrease in sperm quality. There are two reports available that show an effect of cell phones on sperm motility in humans (9, 10). Animal studies indicate that EMW may have a wide range of damaging effects on the testicular function and male germ line (11, 12). Electromagnetic waves can affect reproductive function through both thermal and non-thermal effects (13).

The objective of the present study was to assess the effects of cell phone use on various sperm parameters among patients undergoing infertility evaluation at a male infertility clinic. Our goal was to better understand the role of cell phone use in male infertility and assess the need for any

Received August 22, 2006; revised and accepted January 31, 2007.

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Sperm damage.



REUTERS

Laptop use on laps might reduce sperm quality: report

Mon Nov 08 03:34:19 UTC 2010

NEW YORK (Reuters Life!) - Using a laptop computer as the name suggests may not be good for male reproductive health, according to a study.

And there is little that can be done about it, aside from using the laptop on a desk, said Yelim Sheynkin, a urologist at the State University of New York at Stony Brook who led the study published in Fertility and Sterility.

In the study, thermometers were used to measure the temperature of the scrotums of 29 young men balancing a laptop on their knees. Even with a lap pad under the computer, the men's scrotums overheated quickly.

"Millions and millions of men are using laptops now, especially those in the reproductive age range," said Sheynkin.

"Within 10 or 15 minutes their scrotal temperature is already above what we consider safe, but they don't feel it."

According to the American Urological Association, nearly one in six couples in the United States have trouble conceiving. About half the time this is due to male infertility.

Under normal circumstances, the position of the testicles outside the body keeps them a few degrees cooler than the inside of the body, which is necessary for sperm production.

No studies have yet researched how laptops affect male fertility and there is no strong evidence that it would, Sheynkin added. But earlier research has showed that warming the scrotum even more than one degree Celsius (1.8 degrees Fahrenheit) is enough to damage sperm.

Though both general health and lifestyle factors such as nutrition and drug use can affect reproductive health, tight jeans and briefs are generally not considered a risk factor since people are moving around.

Holding a laptop on the knees, though, requires keeping the legs still and closed. After one hour in this position, the researchers found that the men's testicle temperature had risen by up to 2.5 C.

A lap pad kept the computer cool and meant that less heat was transmitted to the skin, but Sheynkin warned it didn't do much to cool the testicles and might give a false sense of security.

"I wouldn't say that if someone starts to use laptops they will become infertile," Sheynkin told Reuters Health, though he warned that frequent use might contribute to reproductive problems because "the scrotum doesn't have time to cool down."

When the men sat with their legs spread wide -- made possible only by placing the computer on a large lap pad -- they could keep their testicles cooler. But it still took less than 30 minutes before they began overheating.

"No matter what you do, even with the legs spread wide apart, the temperature is still going to be higher than what we call safe," said Sheynkin.

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DIGITAL JOURNAL

<http://www.digitaljournal.com/article/295085>

Report: Laptop, Wi-Fi radiation may affect male fertility

Posted Jul 24, 2010 by [Jaar I. Solar](#)

Argentine researchers have found that radiation emitted by an Internet-connected computer resting on the user's legs may affect male fertility by reducing sperm motility and fragmenting DNA.

The research, first in the world on the subject, was carried out by experts from [Nascentis](#), a reproductive medicine center located in Córdoba, Argentina. The results of the study will be presented at the 66 Congress of the American Society for Reproductive Medicine (ASRM) taking place in October in Denver, USA.



Photo by David Silberberg

The researchers (led by [Conrado Avendaño](#), a biochemist specializing in andrology, in collaboration with [Ariela Mata](#), reproductive biology specialist and [César Sánchez Sarmiento](#), director of the medical center, among others) demonstrated that the motility of spermatozoa is impaired when these cells are exposed to the radiation from laptops, according to a report published in the Córdoba newspaper "[La Voz](#)" (in Spanish).

Men using laptops in a Vancouver cafe

For this study, the researchers evaluated semen samples from healthy donors with no history of recent illnesses. Each sample was divided into two equal fractions, which were placed in separate temperature-controlled rooms. One of the sub-samples was incubated under a laptop connected to the Internet, to replicate the conditions that occur when a man places the computer on his lap.

"After four hours of incubation of sperm under the two different conditions, we found that in the sample exposed to the laptop, a large percentage of the sperm cells were affected,"

said Dr. Avendaño to "[La Voz](#)". The investigator concludes that their study shows that exposure of sperm to the radiation from the device did not kill the sperm cells, but affected their motility. Further, by evaluating the sperm cells' DNA integrity, they found that there was a significant difference between both sub-samples:

"The fraction exposed to radiation had a significant increase in sperm cells with fragmented (broken) DNA,"

said Avendaño.

The findings are important because previous studies on reproductive medicine have shown that some of the problems in fertilization and embryonic development are caused by damage in the DNA molecules of the sperm.

Regular use of a mobile phone can reduce sperm count by 30 percent

RESEARCH from Hungary indicates that men who regularly carry and use mobile phones may reduce their sperm count by up to 30 percent, thus cutting their chances of successful fertilization.

The study adds to previous research that suggests that male fertility may be damaged by mobile phone radiation. Men who carry the phone on a belt or in a trouser pocket are may be at the highest risk.

Details of the research were presented at an international scientific conference of fertility experts on June 29 in Berlin at the European Society of Human Reproduction and Embryology's annual conference. The researchers studied 221 men for 13 months comparing the sperm of those who used their phones heavily with others who did not.

They found that heavy users of mobile phones - those who carried their phone around with them most of the time - had their sperm counts reduced by nearly 30 percent. Many of the surviving sperm showed abnormal movements, further compromising fertility.

Lead researcher, Dr Imre Fejes of the Obstetrics and Gynaecology Department at Hungary's University of Szeged, concludes in the paper: 'The prolonged use of cell phones may have a negative effect on spermatogenesis (sperm production) and male fertility, that deteriorates both concentration and motility.' (*S Times*, 27 June).

As a result of these findings the researchers believe that phones may cause damage while in stand-by mode rather than only when in use, as most previous studies suggest. When not in use phones still emit regular signals to maintain contact with the nearest radio mast.

The study confined itself to men using mobile phones operating on one frequency (900 MHz), but in Britain and many other countries a range of frequencies are used and, although it is likely that any biological or health effects would similarly be found with these frequencies, this requires replication.

Lawrence Challis, emeritus professor of physics at Nottingham University, who chairs the Government's Mobile Telecommunications and Health Re-

search Group, was quoted as saying that, although there were many studies into the health effects of mobile phones, the results were too contradictory to draw firm conclusions.

'Mobile phones have only been around for about 15 years', he said. 'Many serious diseases take much longer than that to produce symptoms and there is no way the research could show this.'

Challis will announce later this year plans for the world's biggest study into the health impact of mobile phones, following the lives of 250,000 people for at least 15 years, simultaneously tracking their phone usage from data supplied by mobile phone companies.

Challis also sits on the NRPB's Advisory Group on Non-ionising Radiation. In January it issued a report on RF in which it reviewed the evidence for damage to sperm by mobile phone radiation, but concluded that there was too little research to draw conclusions (*Health Effects from Radiofrequency Electromagnetic Fields*. Docs of the NRPB, 2003;14(2)).

The Mobile Operators Association, which represents the five main UK mobile phone network operators, said there was still no firm evidence of damage to health.

All-Party Report on masts

A NEW report, *Mobile Phone Masts*, from the UK's All-Party Parliamentary Mobile Group recommends that every cell phone tower should have to go through the normal planning process and would revoke current exemptions.

The report is highly critical of the current planning system and concludes that the voluntary code of practice by the mobile telecommunications industry is inconsistent and leads to public skepticism over planning decisions, according to Phil Willis MP, Chair of the Committee, adding that the panel's 19 recommendations represent a 'huge challenge' for the Government, industry and local authorities.

● The Conservative Party has launched a campaign, *You decide where they go*, to give local people more power over the location of mobile phone masts, while a UKIP MEP has supported Sussex anti-TETRA campaigners.

Two policemen using TETRA die from cancer

(continued from page 1)

thoroughly before it was rolled out. Among other things Neil began to suffer nosebleeds, which is a classic symptom of microwave irradiation.' Sources report that five other cancers have occurred in the Leicester force since TETRA was introduced.

In Lancashire a scene of crime officer using TETRA has also contracted throat cancer. Last year some 173 Lancashire officers complained of health effects they attributed to using TETRA in questionnaires compiled by the Police Federation but little investigation has occurred, the symptoms being attributed as 'psychosomatic' and officers told not to discuss them or moved to other forces.

Airwave, backed by the Home Office, is equipping the 53 forces in England, Scotland and Wales with TETRA, with full activation scheduled by the end of 2005. About 2,500 of the required 3,500 transmitters have been erected and 65,000 officers in 39 forces are using it. The NRPB has dismissed possible health effects in its recent report (left).

But TETRA has provoked strong local protests around the UK with claims that the radiation from the masts causes headaches, sickness, disturbed sleep and skin rashes, leading to rejection of planning permission by councils and expensive appeals by Airwave.

At North Walsham, Norfolk, six people including a police chief inspector have blamed the above symptoms, including nosebleeds, on a new TETRA mast at the station (*D Telegraph*, 14 August). Some 25 people living near the mast have complained of similar symptoms. Chief Insp Steve Strong and other officers have been referred to the force's doctor but forbidden from speaking publicly about it.

In response to public concern the Home Office last year launched a £5m health study including a detailed study of 150 officers and a 15-year monitoring project involving 100,000 users.

Sir William Stewart, former Chief Scientific Adviser to the Government, said in a 2000 report on mobile phone health concerns that frequencies near 16 Hz - close to TETRA's pulsed signal of 17.6 Hz - should be avoided because research suggested they could cause

(continued on page 4)

Effect of cell phone usage on semen analysis in men attending infertility clinic: an observational study

Ashok Agarwal, Ph.D., H.C.L.D.,^a Fnu Deepinder, M.D.,^a Rakesh K. Sharma, Ph.D.,^a Geetha Ranga, Ph.D.,^b and Jianbo Li, Ph.D.^c

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Intervention(s): None.

Main Outcome Measure(s): Sperm parameters (volume, liquefaction time, pH, viscosity, sperm count, motility, viability, and morphology).

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My 'Independent on Sunday'

Esther Rantzen

Every week, a figure in the public eye offers an individual take on our coverage. Today, the president of ChildLine tells us what she thinks

Mobile phones and radiation, page 2 No matter how many dangers people tell me it can cause, my mobile is a crucial part of my life now. They'll just have to find ways to make it safe.

Community? We don't know our neighbours, page 26 The pendulum is swinging back. We pensioners who grew up with a better social structure, we're old fashioned enough to believe in the importance of collaboration, and we're having an influence. The individualism of the Eighties and Nineties is starting to feel old-fashioned.

Radiation from mobiles harms sleep, says study funded by phone makers

Their own scientists discover that bedtime use can lead to headaches, confusion and depression

By **Geoffrey Lean**
ENVIRONMENT EDITOR

Radiation from mobile phones delays and reduces sleep, and causes headaches and confusion, according to a new study.

The research, sponsored by the mobile phone companies themselves, shows that using the handsets before bed causes people to take longer to reach the deeper stages of sleep and to spend less time in them, interfering with the body's ability to repair damage suffered during the day.

The findings are especially alarming for children and teenagers, most of whom – surveys suggest – use their phones late at night and who especially need sleep. Their failure to get enough can lead to mood and personality changes, ADHD-like symptoms, depression, lack of concentration and poor academic performance.

The study – carried out

THE CYCLE OF SLEEP

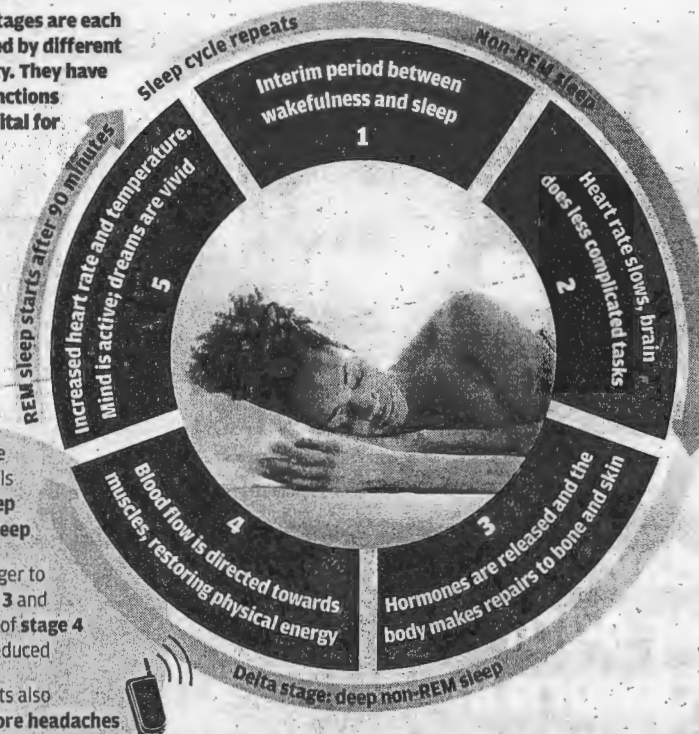
» The five stages are each characterised by different brain activity. They have different functions and are all vital for good health

» Research findings

» The mobile phone signals affected deep non-REM sleep

» It took longer to reach stage 3 and the amount of stage 4 sleep was reduced

» Participants also reported more headaches



University – have similarly found that people claiming to be electrosensitive could not distinguish when the radiation was turned on in laboratory conditions, suggesting that they were not affected.

Critics have attacked the studies' methodology, but the new findings deal them a serious blow. For they show that the radiation did have an effect, even though people could not tell when they were exposed.

It also complements other recent research. A massive study, following 1,656 Belgian teenagers for a year, found most of them used their phones after going to bed. It concluded that those who did this once a week were more than three times – and those who used them more often more than five times – as likely to be "very tired".

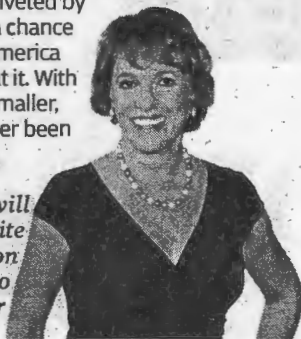
Dr Chris Idzikowski, the director of the Edinburgh Sleep Centre, says: "There is now more than sufficient

warming, we'll have to rely on our communities for support and recreation when we can't use planes and cars any more.

Just one more year!, page 16 The phrase "rats from a sinking ship" springs to mind. I was very dubious about the basis of George Bush's election victory, anyway, when he came to power. I think the next leader will actually have a bit of a honeymoon because of his unpopularity. We need more pragmatism in the White House and a little less religious fervour.

Why is geography Britain's least favourite subject?, Comment, page 44 Geography was always the worst-taught subject at school - which is bizarre when it should be the most exciting. Young people are riveted by travel. Offer them a chance to go to Africa or America and they will leap at it. With the world getting smaller, geography has never been more important.

Esther Rantzen will appear at the White Hat Ball in London next Saturday to raise money for ChildLine.



Weather Outlook: rain in most areas, drizzle in South, some bright spots in Scotland **PAGE 74**

Crosswords
Prize **PAGE 74**
Concise & Beelzebub
THE NEW REVIEW, P46-47

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chip Karolinska Institute and Uppsala University in Sweden and from Wayne State University in Michigan, USA - is thought to be the most comprehensive of its kind.

Published by the Massachusetts Institute of Technology's Progress in Electromagnetics Research Symposium and funded by the Mobile Manufacturers Forum, representing the main handset companies, it has caused serious concern among top sleep experts, one of whom said that there was now "more than sufficient evidence" to show that the radiation "affects deep sleep".

The scientists studied 35 men and 36 women aged

between 18 and 45. Some were exposed to radiation that exactly mimicked what is received when using mobile phones; others were placed in precisely the same conditions, but given only "sham" exposure, receiving no radiation at all.

The people who had received the radiation took longer to enter the first of the deeper stages of sleep, and spent less time in the deepest one. 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."

The embarrassed Mobile

Manufacturers' Forum played down the results, insisting - at apparent variance with this published conclusion - that its "results were inconclusive" and that "the researchers did not claim that exposure caused sleep disturbance".

But Professor Bengt Arnetz, who led the study, says: "We did find an effect from mobile phones from exposure scenarios that were realistic. This suggests that they have measurable effects on the brain."

He believes that the radiation may activate the brain's stress system, "making people more alert and more focused, and decreasing their ability to wind down and fall asleep".

About half of the people studied believed themselves to be "electrosensitive", reporting symptoms such as headaches and impaired cognitive function from mobile phone use. But they proved to be unable to tell if they had been exposed to the radiation in the test.

This strengthens the conclusion of the study, as it disposes of any suggestion that knowledge of exposure influenced sleeping patterns. Even more significantly, it throws into doubt the relevance of studies the industry relies on to maintain that the radiation has no measurable effects.

A series of them - most notably a recent highly publicised study at Essex

ber of reputable investigators who are finding that mobile phone exposure an hour before sleep adversely affects deep sleep."

Dr William Kohler of the Florida Sleep Institute added: "Anything that disrupts the integrity of your sleep will potentially have adverse consequences in functioning during the day, such as grouchiness, difficulty concentrating, and in children hyperactivity and behaviour problems."

David Schick, the chief executive of Exradia, which manufactures protective devices against the radiation, called on ministers to conduct "a formal public inquiry" into the effects of mobile phones.

Heathrow and BA return to normal after crash

By David Randall

Operations at Heathrow airport returned to normal yesterday after the extraordinary crash-landing of British Airways Flight 038, in which the crew of the Boeing 777 had just seconds to get the aircraft down safely after the engines failed on Thursday afternoon.

The airport's schedules had been badly disrupted after the incident, with 221 flights cancelled on Thursday. But a BAA spokeswoman yesterday said: "All

operations are returning, with all terminals returning to normal ... all passengers can resume normal procedures for checking in."

British Airways said it had fully restored its long-haul schedule and had 95 per cent of its short-haul flights running as normal.

The wreckage will be removed from the runway this morning, and taken to the eastern BA hangars at Heathrow. Yesterday, investigators remained with the aircraft, having worked through the night to gather

possible evidence on the cause of the fault.

The preliminary report by the Air Accidents Investigation Branch into the incident - which left 18 of the 136 passengers needing treatment - is due in about 30 days. The AAIB said its inquiry was now focused "on more detailed analysis of the flight recorder information, collecting further recorded information from various system modules, and examining the range of aircraft systems that could influence engine operation".



Passengers at Heathrow shortly after the accident PA

It is believed no alarm sounded to warn the pilots of the aircraft's difficulties.

The AAIB's initial findings appeared to corroborate claims that the plane had suddenly lost power.

Meanwhile, Senior First Officer John Coward, who, under the command of Captain Peter Burkill averted disaster by bringing the plane down, said of the landing yesterday: "It wasn't just one thud but a series of thuds." This was followed by "an eerie silence" as the jet came to a halt. "I feared a catastrophe," he said.

SPECIAL REPORT PAGES 8-9



'Correlation found between mobile phone masts and sleep disturbances'

29 Apr 2005

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"We have found that people who are very electrosensitive in the evening, do not sleep well in the night". Prof. dr. Norbert Leitgeb of the Technical University of Graz in Austria told it to a journalist of the Grazer Woche. "This could indicate, that mobile phone masts and other sources of radiofrequent radiation indeed have a negative influence on the well being of many persons."

His saying refers just to the result of a pilotstudy, meant to verify the design of a larger investigation to come. Nevertheless the result is spectacular, Leitgeb confirms. Of nine testpersons the more electrosensitive appeared to sleep much better when protected from radiofrequent radiation. Leitgeb does not find this is proof yet. The upcoming research has to confirm the relationship between sleeping quality, electrosensitivity (50 Hz) and the load of radiofrequent radiation by GSM masts, DECT wireless telephones, WLAN wireless networks and other sources. The research will not take place in a laboratory, though at home with twenty people throughout Austria. Results are expected in the beginning of 2006.

Causal relationship

In an article in the magazine Bioelectromagnetics Leitgeb describes the existence of electrosensitivity. It is proven that some persons have a heightened sensitivity for electric, magnetic and electromagnetic fields. "Though there has not been established a causal relationship yet, the symptoms of some persons are thus severe, that they leave their homes and jobs and try to find release in an environment with less 'electromagnetic pollution'. These persons have a serious problem and need to get help. To find proof of a causal relationship is not just a scientific interest, but the problem also has a socio-economic aspect", says Leitgeb.

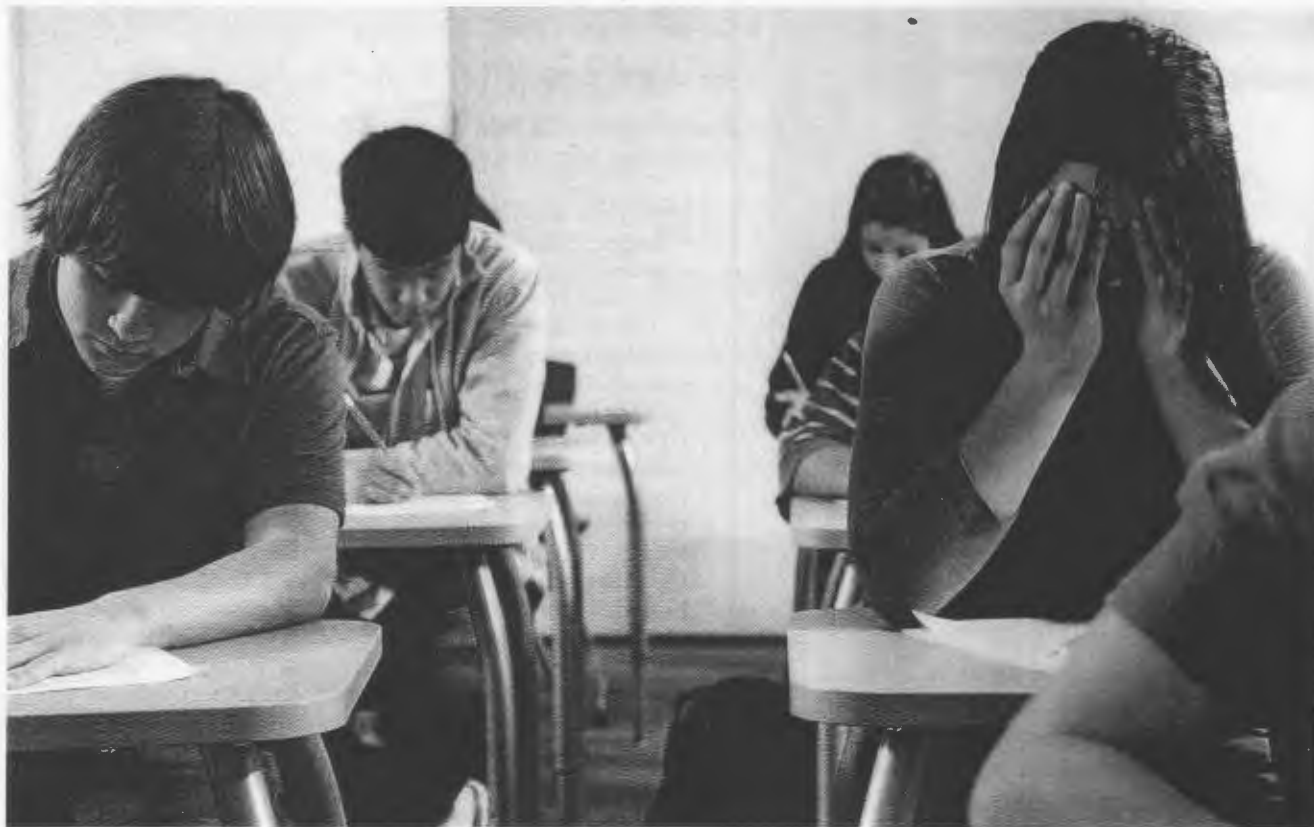
UMTS mobile phone masts

In The Netherlands there is a growing stir about the placement of UMTS mobile phone masts. Also the GSM mobile phone masts, DECT wireless telephones and WLAN wireless networks are suspect of causing 'radiofrequent radiation sickness'. A symptom is the heightened electrosensitivity to low frequency electric and magnetic fields (50 Hz), but the sickness also would have other symptoms like sleeping disturbances, palpitations of the heart, high blood pressure, tinglings, concentration and remembrance distortions, dizziness, burning skin, tinnitus, eye problems, lack of energy and many more. In The Netherlands a study by TNO confirmed the correlation of cognitive functional deviations and the radiation of GSM and UMTS. Moreover, the radiation of UMTS appeared to cause tinglings and dizziness.

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- Author: Frans van Velden

(head lines)



>> MENTAL HEALTH

Less Sleep Linked to Blues in Teens

Earlier bedtimes set by parents protect against depression

Despite kids' protests, enforcing early bedtimes may be good for their mental health. Teens who are allowed to go to bed later are more likely to suffer from depression—probably for the simple reason that they are not getting enough sleep, a recent study suggests.

Columbia University scientists found that depression was 24 percent more common in teens whose parents let them go to bed at midnight or later than in kids whose moms and dads required them to hit the pillow by 10 p.m. The night owls were also 20 percent more likely to have suicidal thoughts.

Teens with bedtimes of midnight or later got an average of seven and a half hours of sleep, whereas those with a lights-out of 10 p.m. or earlier got an average of eight hours and 10 minutes. Although the association between later bedtimes and depression was greater before controlling for parents' marital status and poverty level, it remained statistically significant after taking those things into account—as well as teens' perceptions of how much their parents cared about them.

The researchers looked at parent-enforced bedtimes—as opposed to simply logging hours slept—to rule out the possibility that depression was causing some kids to sleep less, rather than the other way around.

Earlier work supports the idea that too little sleep may lead to depression. Research at the University of London showed that children who suffer from insomnia are at

increased risk of developing depression in their tweens and teens. And a University of Pittsburgh study of youth at risk for hereditary depression found that the one biological predictor of resilience—in other words, not getting depressed—was adequate sleep. Although too little sleep is unlikely to be solely responsible for a teen's low mood, in those with a genetic or environmental predisposition sleep loss may raise risk and satisfying rest may be protective.

Recent studies at Walter Reed Army Medical Center and the University of California, Berkeley, are starting to tease out why. During brain scans, sleep-deprived but otherwise healthy people showed increased activity in the amygdala (the brain's emotional center) and decreased activity in the prefrontal cortex (an area that puts our experiences in context, and by extension, makes us rational)—the same changes seen in people who are depressed. In one army study, subjects started to show symptoms of depression, and the Berkeley subjects became more distressed than rested participants when confronted with upsetting images.

All these neurobiological effects may hit teens especially hard, says psychologist William D. "Scott" Killgore of Harvard Medical School-affiliated McLean Hospital, a co-author of the army research. As teens cope with increasingly complicated daily life, they need more sleep than younger kids or adults, Killgore explains, and so "not getting enough sleep is especially problematic."

—Jordan Lite

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guardian.co.uk The Observer

Child suicide bids rise to more than 4,000

Children's Secretary calls for greater vigilance to spot those at risk

Jo Revill and John Lawless

The Observer, Sunday December 16 2007

More than 4,000 children under 14 have attempted to take their own lives in the past year, according to NHS figures that show the scale of distress and mental suffering in the young.

Statistics being released this week will paint a terrible picture of how children have tried to commit suicide. They reveal that 69 attempted to hang or suffocate themselves and two tried to drown themselves. Most took overdoses of medicines, drugs or solvents in an effort to end their lives, but some resorted to more extreme measures. Thirteen children leapt from a great height, while four lay or jumped in front of a moving vehicle. One child attempted suicide by deliberately crashing a car.

The records show that 4,241 children under 14 were admitted to hospitals in England in the 12 months to March 2007 after attempting to kill themselves. The figures are in a report by the Information Centre for Health and Social Care, a body set up by the government to analyse the details behind nearly a million adult and child admissions to accident and emergency departments each year.

The number of suicide attempts, which has risen slightly in the past five years, will worry ministers, who are aware that secondary school teachers and family doctors are increasingly seeing children, particularly young boys, in states of distress without being able to offer a specialised support service.

Ed Balls, the Children's Secretary, has set up a review of children's and teenagers' mental health services with the aim of finding ways to stop problems arising. He called last week for more vigilance in spotting 'distress signals' in young boys.

There is a growing debate about whether mental health disorders are rising in the young, but there are signs that health professionals are seeing more young patients. The number of prescriptions handed out to children under 16 for depression and mental health disorders has quadrupled in a decade.

Isla Dowd, of the charity Rethink, said: 'To have this number of children attempting to commit suicide in a country where we are claim to have a culture where every child matters is profoundly shocking. Children often attempt suicide when they feel that such drastic action is the only solution to their problems. There is still not adequate and appropriate access for children experiencing emotional and mental distress.'

About one in 10 children and young people will suffer behavioural, emotional or mental health problems before the age of 18, with twice as many young boys under 10 as girls diagnosed with a mental health disorder.

Balls said: 'We know that girls are better than boys at asking for help when they need it. That is why we are calling on professionals working with children to keep a close eye on boys in particular and spot when they are distressed.'

Health Secretary Alan Johnson added: 'Having good mental health enables young people to make the most of their opportunities. However, we know that a minority of children and young people are at increased risk of developing mental health problems than their peers.'

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Open Letter Concerning Children's Suicides

Several years ago I addressed your Council and warned of suicides. In my letter to you (Children's Suicides 24.2.08) I outlined reasons with World Leading research to support my claim. I suggested you ask Sir William Stewart one question "Can low level microwaves harm some children's brains?" As I have received absolutely no communication from any investigating body, may I please predict what is going to happen next, in my opinion. As research is showing damage to the blood brain barrier from low level microwaves, along with suppression of the immune system, you can expect an increase very soon in mental illness: specifically; schizophrenia, bi-polar, autism, alzheimer's disease and Tourette's syndrome. The cause of this will be either damage to the neuregulin protein (coating axons) and/or microbes penetrating the brain interfering with the level of cytokines (interleukin-8). You may wish to contact the worlds leading research scientists in this area (Prof. D. Fields - National Inst. of Child Health and Human Development U.S.A) and (Prof. Melinda Wenner. NY. U.S.A); and ask the same question I suggested you ask Sir William. Each have published research recently which could be of interest to you. If you are thinking that I must be incorrect because this is only happening in Bridgend, I can assure you it isn't. You should see my World File of Children. Once again I ask to give evidence to your investigating committee.

Barrie Trower.

Scientific Advisor to: Radiation Research Trust
H.E.S.E. (International)
Electrosensitivity (U.K.)

5.5.08



Ser
with

Policy Category: General

Effective Date: January 1, 2004

Approved By: President

WiFi Policy

General Statement

Lakehead University is completely connected to the World Wide Web. Connectivity is provided by a comprehensive campus fibre-optic network with approximately 8,000 plug-in sites, as well as internet cafés and computer laboratories, giving access to 650 computers. Only those areas not served by the fibre-optic backbone have a wireless option.

Purpose

The purpose of this policy is to limit wireless connectivity based on the "precautionary principle" as there are numerous scientific studies that suggest there is a basis for concern that continuous or frequent long-term exposure to WiFi electromagnetic fields (EMFs) could have adverse health effects (see Benevento and Catania Resolutions attached as Appendices A and B).

Background

Microwave radiation in the frequency range of WiFi has been shown to increase permeability of the blood-brain barrier, cause behavioural changes, alter cognitive functions, activate a stress response, interfere with brain waves, cell growth, cell communication, calcium ion balance, etc., and cause single and double strand DNA breaks at EMF levels as low as 0.005 W/kg.

Policy

There will be no use of WiFi in those areas of the University already served by hard wire connectivity until such time as the potential health effects have been scientifically rebutted or there are adequate protective measures that can be taken.

Review of Policy

The President will continue to monitor research in the area to determine whether a change in policy is warranted.

Appendix A

Benevento Resolution

http://www.icems.eu/benevento_resolution.htm

Benevento Resolution

The International Commission for Electromagnetic Safety (ICEMS) held an international conference entitled .The Precautionary EMF Approach: Rationale, Legislation and

School bans mobile phones on health grounds as student muggings increase

KING Alfred's School in north London has banned the use of mobile phones by students mainly on the grounds of health concerns and a spate of student muggings resulting in phones being stolen.

Headmistress Mrs Lizzy Marsden told *EMH&T*: 'I've decided to keep them banned and the health concerns are paramount, especially since some of the children are as young as four. Also, there have been a growing number of muggings of students locally which is worrying. Of the 11 to 18-year-olds I estimate 80% have a mobile.'

Her decision comes after gathering information on possible health hazards from mobile phone radiation to draw up regulations for the use of mobile phones at the private school by its 500 male and female students aged between 4 and 18.

In a similar vein, two more local education authorities have followed the lead of Edinburgh City Council in assessing the possible health risks from mobile phones to produce guidelines to students on their use at school.

Brighton and Hove Council in East Sussex and education chiefs in Derbyshire are warning children of the possible dangers from mobile phone use.

In December Edinburgh City Council issued a report by the Director of Environmental and Consumer Services entitled, 'The Use of Mobile Phones by Elected Members, Council Staff and Advice for School Age Children'.

It recommends the endorsement of its

proposed health and safety advice for students' use of mobile phones as follows:

- Hands-free mobile phones should be used where practicable, as these will minimise absorption of microwaves by the head;
- When carrying or using hands-free mobile phones, whenever practicable the phone should be positioned away from the body, rather than in a pocket or on a belt, etc;
- If using a mobile phone without a hands-free device, users should minimise absorption of microwaves by holding the phone antenna away from the head;
- Users should be aware of the screening effects of buildings and, where practicable, mobile phones should be used outside or near a window, etc.

Although the recommendations are useful, the report is lacking in certain respects. For example, it does not mention that these phones emit a pulsed signal, at 217Hz, which is thought by many independent researchers to be the prime culprit for the adverse effects.

Professor Salford at Lund University in Sweden has shown that such pulsing can alter the permeability of the blood-brain barrier in rats which, if occurring in humans, could have profound effects on brain function.

In the US Professor Om Gandhi at the University of Utah, Salt Lake City, reported in 1996 that five-year-olds absorb 50% more and 10-year-olds 10% more radiation than adults.

Ear exposure over cellphone radiation limits causes US manufacturers to move goal-posts

A REPORT that shows that many mobile phones exceed current US limits by over-exposing the ear to radiation has prompted American manufacturers to seek relaxation of exposure standards for the outer ear.

Dr CK Chou of Motorola has proposed that, for the general public, the outer ear should be considered an 'extremity', similar to the hands, feet, wrists and ankles.

The American Institute of Electrical Engineers (IEEE) RF/MW standard allows higher exposures for these extremities and is expected to approve the change.

At an October meeting in Atlanta of the IEEE's Standards Coordinating Committee 28, Dr Veli Santomaa of Nokia supported the proposal.

Although 'the SAR in the ear is the highest in the body, ... the outer ear is not a vital organ,' he said, according to *Microwave News* (1999;19:(6)1). Apparently its main function is simply 'to capture sound for hearing'.

Therefore, Santomaa contended, it is not necessary to protect the outer ear against RF exposure 'at the same level as the brain'.

The IEEE's RF/MW standard limits most of the body to an exposure of 1.6W/Kg averaged over 1g of tissue. (In the UK the NRPB only requires 2W/Kg averaged over 10g.) But exposure of the extremities is allowed up to 4W/Kg, averaged over the greater 10g.

Dr Om Gandhi, of the University of Utah, Salt Lake City, recently tested 10 mobile phones - five analog and five PCS digital models. All five of PCS ones met current standards, four of the five analog units had SARs in the ear that exceeded the IEEE limit of 1.6W/Kg averaged over 1g. Three of the phones' SAR were twice as high as the limit while one reached 5.4W/Kg.

All 10 phones were approved by the Federal Communications Commission because the agency allows testing with a plastic spacer instead of a realistic, radiation-absorbing model of the ear.

In his paper Gandhi writes: 'An earless model with a 4-6mm thick plastic spacer underestimates the... SAR down to 40-60% of the actual SAR.'

IEEE Transactions on Electromagnetic Compatibility 1999;41:234-45.

Union warns members to cut mobile phone use due to health fears

THOUSANDS of civil servants have been warned by their union to stop using mobile phones due to fears they could be damaging their health.

Leaders of the Public and Commercial Services Union said its 266,000 members should not be forced to carry or use a mobile phone. Instead, staff should be provided with phone charge cards.

Those who have to travel for their work are advised to carry mobiles only in case of an emergency, according to the Union's guidelines. But they are advised to switch them off whenever possible.

And members should carry any phone away from their body, when it is on and not

in use, not clipped to a belt.

Incoming mobile calls should be kept short and only acknowledged with 'a promise to ring back from another phone when safe to do so.'

Union members are also told: 'Don't press the mobile hard against your head - leave a gap.'

Union leader Barry Ramsbottom told *The Sunday Mirror* (March 18th):

'We are probably the first union to warn all its members against using mobile phones.'

'We are simply saying medical opinion is still divided over the possible health implications of long-term usage. Our message is, 'Don't gamble with your health'.'

"When plaque limits are exceeded, people begin to experience more and more synaptic dysfunction"

of symptoms as those on the placebo. In other words, the drug was doing what it was supposed to do, but without slowing the disease.

The study seems to confirm what has long been suspected from post-mortem evidence: that plaque size and dementia symptoms don't correlate. That has always been the central objection to the plaque hypothesis, says Dominic Walsh, a neurologist at University College Dublin in Ireland. "Lots of people have Alzheimer's plaques but are not demented."

If the plaques aren't responsible, then what is? Alzheimer saw more than plaques in Deter's brain: there were also the tangles, which form inside neurons themselves.

The tangled material is now known to be made of a protein called tau, which can build up until it almost fills the neuron, which then dies. Crucially, unlike with plaques, the number of tangles in a patient's brain seems to correlate well with their level of dementia.

Recent studies also suggest that stopping

tau molecules from clumping together could be an effective drug target. A drug called Rember, made by a Singapore-based start-up called TauRx Pharmaceuticals, has shown promising results in early trials, and the company claims to have an even more effective version that will begin final-stage trials this year.

That might seem to be the end of the amyloid theory. Not quite. A number of studies have investigated what triggers tau to accumulate in neurons in the first place, and they point right back to amyloid beta (*Science*, vol 293, p 1491). So even if tau is the direct cause of dementia, amyloid beta build-up could still be the trigger.

If that is the case, then why don't plaque-targeting drugs seem to work? A growing number of researchers suspect that the problem is that they have been looking at the wrong form of the protein. There is increasing evidence that short chains of amyloid beta molecules known as oligomers are really responsible for the symptoms of Alzheimer's disease. Oligomers – small, soluble precursors to the large, insoluble plaques – appear from cell and animal studies to be damaging to neurons. In fact, many now believe that the plaques may actually be the brain's way of disposing of something toxic.

In April, this theory got a huge boost from a study by Sam Gandy at Mount Sinai School of Medicine, New York, and his colleagues. The team engineered mice to produce oligomers but stop short of developing plaques and found that the animals experienced the same memory and cognitive problems as those that had plaques did (*Annals of Neurology*, DOI: 10.1002/ana.22052). "At least in mice, the oligomer dose did seem to correspond pretty much with the severity of the memory problems," says Gandy.

The real bad boys

The study is a coup de grâce, says Rudolph Tanzi, an Alzheimer's researcher at Harvard Medical School and Massachusetts General Hospital in Boston. "It finally shows exactly what all the previous data were pointing to but never directly showed – we can have a brain with no plaques but still have problems."

Gandy thinks the oligomers may kill brain cells by making them leaky. Like cell membranes, amyloid beta is relatively hydrophobic, which could draw the two together. If the oligomer then punctured the membrane, it would kill the cell. Alternatively the oligomers may be acting indirectly: other studies have shown that they can cause the

Brain defence gone wrong?

Amyloid beta, the protein synonymous with Alzheimer's disease, is continually produced by the body throughout life, but its role in normal brain function has remained a mystery. Robert Moir at Massachusetts General Hospital in Boston recently noticed that the protein closely resembled others key to the non-specific, or "innate", part of our immune system.

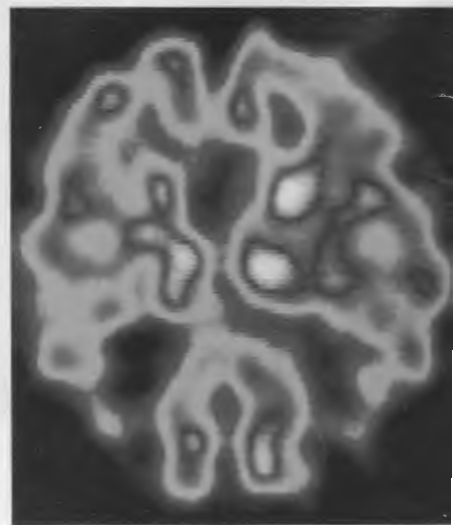
The innate immune system differs from the "adaptive" immune system in that it produces generic cells and chemicals to fight infection, while the adaptive side churns out specifically targeted lymphocytes and

antibodies. The blood-brain barrier protects the brain from most pathogens, but also blocks adaptive cells, so the brain relies on innate immunity for defence.

Amyloid beta might be part of this. Moir's team tested the protein against 15 important pathogens, and compared its activity to that of an antimicrobial peptide called LL37. Amyloid beta stopped the growth of eight pathogens – in some cases more effectively than LL37. This suggests that Alzheimer's could be the result of the brain's own defences going into overdrive (*PLoS One*, DOI: 10.1371/journal.pone.0009505).

Moir, along with colleague Rudolph Tanzi, believes that amyloid beta plays a dual role in the brain. The protein seems to be associated with synapses, the junction between neurons. The researchers suspect that during infection, as well as dealing directly with the pathogen, the protein damps down signal transmission at affected synapses.

"But too much of a good thing and it becomes bad," says Tanzi. Some kind of trauma to the brain, such as chronic infection, a bang to the head or a stroke, could send amyloid production into overdrive, leading to Alzheimer's.

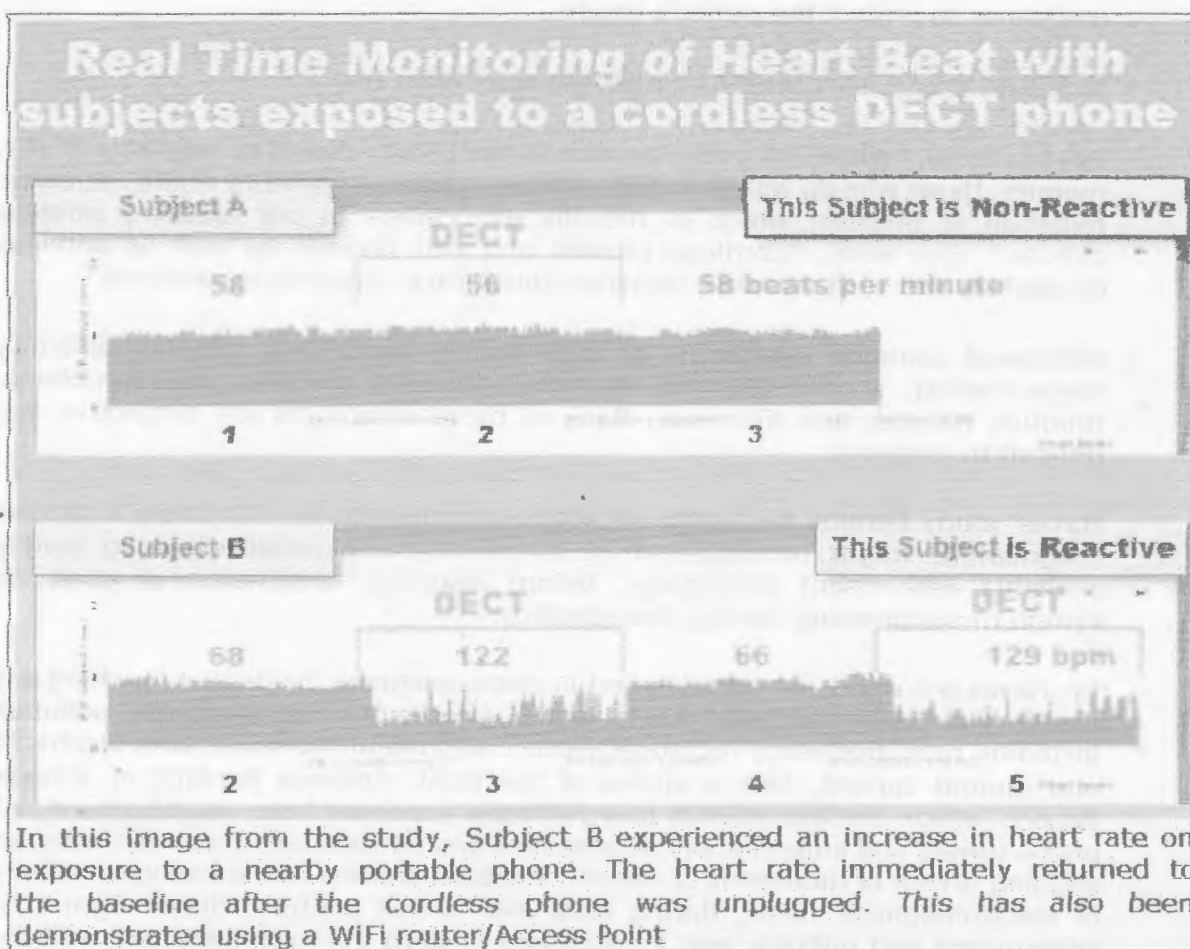


DECT Cordless Phones (and WiFi) Causes Heart Irregularities

DECT Cordless phones which transmit a pulsed signal have been shown to impact heart rate in new research published in the European Journal of Oncology [1].

The double-blind, peer reviewed provocation study of 25 people validates the condition complained of by increasing numbers of people across the globe today called 'electrosensitivity' (ES or EHS), demonstrating immediate effects on heart rate, almost doubling the heart rate in some cases. The study was led by Prof. Magda Havas of Trent University, Canada.

"What we found is what many people have said for a long time about devices that emit microwaves," stated Dr. Havas. "People don't just feel ill, their heart begins to race and this is measurable with medical heart monitoring devices."



Havas' new study adds to the growing interest in the health effects of mobile phones and WiFi which also transmit microwave radiation. The effects on heart-rate have also been demonstrated using a WiFi router/Access Point. This broadens the focus beyond mobile phones' association with brain tumors to their potential effect on other systems, including the heart. It also raises serious concern about risks of exposing schoolchildren to Wi-Fi networks, providing a possible explanation for why some children in schools with Wi-Fi are being

Children



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by State

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Indian Recipes

India Twits

Indian Jobs

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Cellular phones 'lead to bone weakening'

From ANI

Washington, Oct 24: Do you wear your cell phone on your belt? Well, here's some news for you-the electromagnetic rays from mobiles lead to decreased bone density in an area of the pelvis that is commonly used for bone grafts.

Osteoporosis Causes

Learn How to Manage

Osteoporosis & Increase Bone Density. It's Easy!

www.Osteoporosis.com/Health/Health.aspSoy Food & Osteoporosis

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SoyNutrition.comLawyer- Jaw Osteonecrosis

You may deserve compensation if you took bone meds. Free case review.

www.law.com/atlanta

Ads by Google

A study by Dr. Tolga Atay and colleagues of Suleyman Demirel University, Isparta, Turkey, found that with long-term exposure, electromagnetic fields from cell phones could weaken the bone, potentially affecting the outcomes of surgical procedures using bone grafts.

The researchers measured bone density at the upper rims of the pelvis (iliac wings) in 150 men who were cell phone users and carried their phones on their belts.

They took the measurements via a technique called dual x-ray absorptiometry-the same test used to measure bone density in patients with osteoporosis and other bone diseases.

Bone density was compared on the side where the men wore their phones (the right side in 122 men and the left side in 28) versus the opposite side.

The men carried their phones for an average of 15 hours per day, and had used cell phones for an average of 6 years.

The results showed a slight reduction in iliac wing bone density on the side where the men carried their phones.

The difference was not statistically significant, and did not approach the reductions seen in osteoporosis.

However, the researchers have noted that the men were relatively young-average 32 years-and that further bone weakening may occur with longer follow-up.

The results raise the possibility that bone density could be adversely affected by electromagnetic fields emitted by cell phones.

The iliac wings are a widely used source of bone for bone grafting, so any

Press Release by the Health Protection Agency on 15th Sept 2009
entitled "Scientist probe laptops Wi-Fi Emissions.

Comments by Andrew Goldsworthy on 20th Sept 2009

The following quote from the notes to editors is muddled and deeply misleading.

"There is no consistent evidence to date that exposure to RF signals from Wi-Fi and WLANs adversely affect the health of the general population".

It is muddled because it confuses two completely separate issues.

1. Is there any evidence that Wi-Fi is harmful to health?

The answer to this is **DEFINITELY YES.**

2. Is the whole population affected?

The answer to this is **SEEMINGLY NOT.**

It is misleading because it is written in such a way as to imply that Wi-Fi is safe for **EVERYONE** and there is no reason why it should not be used universally in schools. What about the health of the students and staff who are affected? Do they not care?

The use of the word "consistent" in the quote is also worrying since it suggests that physicists and engineers, possibly from the mobile phone and Wi-Fi industries, rather than biologists and health experts, are in control.

No trained biologist or medical practitioner would ever expect the same level of consistency from experiments with complex living organisms as is possible with simple physical systems.

Apart from identical twins, each one of us is genetically and physiologically unique and we do not all respond in the same way to metabolic insults. Not everyone who smokes dies of cancer, and we do not all suffer the same side effects from taking a medicinal drug. Even the same person may not be equally susceptible all of the time. For example, if we are ill, our resistance to further infections is usually lowered. Anyone who says that we must all show the same response to electromagnetic radiation before its effects can be regarded as real must have a very limited knowledge of biology. They are certainly not qualified to sit in judgement on important health issues that are likely to affect billions of people worldwide, let alone the health of unsuspecting UK school children and staff who have no choice.

Not every country agrees on the Safety Guidelines

The press release is also misleading when it says that the electromagnetic radiation from wireless laptops and mobile phones fall within internationally agreed Safety Guidelines. It says nothing about the fact that **THESE GUIDELINES ARE NOT UNIVERSALLY AGREED** and many other countries such as Russia, China, Italy, Switzerland and the USA (i.e. much of the industrialised world) are much more

wifi

> Subject: Fw: Re Wifi- RECOMMENDATIONS AND INTERPRETATIONS OF BECTA DOCUMENT-URGENT

>
>
>

> Dear Sirs,

>

> Further to my emails of 21st. and 22. Oct. I write to say that we have today received advice and interpretation of the BECTA Document:

>
>

<http://industry.becta.org.uk/content_files/industry/resources/Specification_key_docs/techspec_instit

>

http://industry.becta.org.uk/content_files/industry/resources/Specification_key_docs/techspec_instit
> _final.doc

>

> The advice which we have received refers to the section from the document:

> 1.1 "A wired network must therefore be used as the main network in an institution."

> and

> 1.2 "Wireless networking can provide an additional layer of flexibility to enhance traditional wired networks, allowing access to
> the network from previously inaccessible locations."

>

> The advice that we have received is that the installation of whole school wireless networks is AGAINST BECTA recommendations.

> BECTA, contrary to what is believed, (it would seem), by headteachers and governors, does not appear to be recommending the use of

> wireless technologies as a basis for a school network. Headteachers should therefore be disabused of this interpretation and given

> correct guidance as a matter of urgency.

>

> This raises the possibility that schools under the control of SMBC are not adhering to the true BECTA standard but to a

> misunderstanding of it.

>

> Diana Hanson. Chair. Cavisoc.org.uk

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Wi-Fi

Subj: **Wireless Technologies Cause Harm to Children and Adults, Legislators and Journalists Are Told**
Date: 01/07/2009 10:49:32 GMT Standard Time
From: eileen@radiationresearch.org
To: SylviaWright36@aol.com

For your information, please forward enclosed message:

Wireless Technologies Cause Harm to Children and Adults, Legislators and Journalists Are Told

Washington, D.C., June 30, 2009; Today The National Institute for Science, Law and Public Policy ("NISLAPP") mailed a report on the health hazards of wireless technologies to Governors, Members of Congress, President Obama and his Administration, as well as to thousands of health and environmental journalists.

Legislators and journalists are being urged to learn about the health consequences of microwave radiation exposure from cell phones, neighborhood antennas, wireless networks, wireless routers, DECT portable phones, and the potential health consequences of further chronic exposures from wireless broadband and new wireless utility technologies.

The National Institute for Science, Law and Public Policy is encouraging all to become engaged with this important public health issue impacting adults and children, as well as animals and nature.

Co-authored by Dr. Magda Havas, Assoc. Professor of Environmental and Resource Studies at Trent University in Canada, and Camilla Rees, Founder of www.ElectromagneticHealth.org, "**Public Health SOS: The Shadow Side of the Wireless Revolution**" reviews the independent science on the health hazards of wireless radiation and offers recommendations to the public on how to live more safely in a wireless world.....

READ MORE: (<http://sn.im/15qfd>)

Amazon.com Listing - <http://sn.im/16xgh>

Kind regards,

Eileen

Eileen O'Connor
Radiation Research Trust
www.radiationresearch.org
Rewire.Me eMagazine
www.rewire.me

Wi-fi in School

Concern about its Health Effects on Children

Ysgol Pantycelyn, a **comprehensive in Carmarthenshire**, has switched off its wi-fi network after parents expressed their concerns. **The head teacher said, "the concerns of the parents were of greater importance than our need to have a wireless network."**⁹⁰

Stowe School, the **Buckinghamshire public school**, removed part of its wi-fi network after a teacher became ill. **His reaction to the network was so strong he could not teach.**

A report prepared for Stowe School contains the following paragraph:

The consequence of such a precautionary approach is that wi-fi is inappropriate for infant, primary and most secondary schools or colleges. Use and exposure in secondary schools could depend on pupil age but, to avoid known health risks, a wired solution is highly preferable. Where pupils are under 18, schools and parents should see their duty of care as protecting children from avoidable radiation.⁹¹

Conclusion

- The health of our children is paramount
- The chair of the government's Health Protection Agency has called for an urgent review of potential health risks of wi-fi in school
- Government advice that wi-fi is safe fails to take into account substantial evidence that wi-fi may have adverse health effects
- Schools have a duty of care towards children
- [Name of school] should take the precautionary approach, and not use wi-fi until it has been shown beyond reasonable doubt to be safe

Martin Aitken
June 2009

2. The Science

1. Research Programmes and Reviews

The programmes and reviews quoted in this section cover a broad range of frequencies and study types including in vivo, in vitro and epidemiological research. These studies form a basis of evaluation for the effects of all digital wireless applications, including Wi-Fi.

1.1. The REFLEX Report (December 2004)

*Risk Evaluation of Potential Environmental Hazards from Low Frequency Electromagnetic Field Exposure Using Sensitive in vitro Methods. A project funded by the European Union under the programme "Quality of Life and Management of Living Resources."*¹

Twelve institutes in seven countries have found genotoxic effects, and effects on gene expression and protein formation in cells in vitro, under extremely low frequency-structured radio frequencies at low levels, well below current international safety guidelines. Results like these indicate the possibility of long-term genetic damage, and other biological consequences for users of mobile phones and those exposed chronically to other sources of modulated and structured electromagnetic fields.

"The main goal of the REFLEX project was to investigate the effects of EMF on single cells in vitro at the molecular level below the energy density reflected by the present safety levels... The Reflex project was, therefore, designed to answer the question whether or not any of these disease causing critical events could occur in living cells after EMF exposure. Failure to observe such events in living cells in vitro after EMF exposure would have suggested that further research efforts in this field could be suspended and financial resources should be reallocated for the investigation of more important issues. The now available scientific evidence of such critical events, however, demonstrates the need for intensifying research. Although in vitro data can never prove EMF as a cause of disease, they do support such an assumption. Precautionary measures seem to be warranted."

Lai and Singh used power frequency fields, and modulated microwave fields (CDMA) in their experiments, finding single and double strand breaks. Double strand breaks are unusual and can lead to cancerous cells. Exposure to microwave radiation (2,450 MHz, at a whole body specific absorption rate (SAR) of 0.6 and 1.2 W/kg) for 2 hours caused an increase in both single and double strand breaks in DNA of brain cells in the rat. (Lai and Singh, 1995², 1996.)³

1.2. The Wireless Technology Research Programme

In 1993, the US Congress decided that proper cell phone research was needed. An agreement was made between the FDA and the wireless industry according to which

Press Release by the Health Protection Agency on 15th Sept 2009 entitled
"Scientist probe laptops Wi-Fi Emissions."

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The use of the word "consistent" in the quote is also worrying since it suggests that physicists and engineers, possibly from the mobile phone and Wi-Fi industries, rather than biologists and health experts, are in control.

No trained biologist or medical practitioner would ever expect the same level of consistency from experiments with complex living organisms as is possible with simple physical systems.

Apart from identical twins, each one of us is genetically and physiologically unique and we do not all respond in the same way to metabolic insults. Not everyone who smokes dies of cancer, and we do not all suffer the same side effects from taking a medicinal drug. Even the same person may not be equally susceptible all of the time. For example, if we are ill, our resistance to further infections is usually lowered. Anyone who says that we must all show the same response to electromagnetic radiation before its effects can be regarded as real must have a very limited knowledge of biology. They are certainly not qualified to sit in judgement on important health issues that are likely to affect billions of people worldwide, let alone the health of unsuspecting UK school children and staff who have no choice.

Not every country agrees on the Safety Guidelines

The press release is also misleading when it says that the electromagnetic radiation from wireless laptops and mobile phones fall within internationally agreed Safety Guidelines. It says nothing about the fact that **THESE GUIDELINES ARE NOT UNIVERSALLY AGREED** and many other countries such as **Russia, China, Italy, Switzerland and the**

MEMORANDUM

EMF OF MOBILE TELEPHONES - CHILDREN BELONG TO A GROUP OF INCREASED RISK. A SCIENTIFIC DATABASE FOR AN ESTIMATION OF DANGER IS LACKING. THE EXISTING STANDARDS DO NOT CORRESPOND TO NEW RF EMF RADIATING CONDITIONS.

The opinion of Russian National Committee on Non-Ionizing Radiation Protection (RNCNIRP)

March 4, 2009, Moscow, Russia

During use of a mobile telephone a child's head is exposed to EMF. The exposure concentrates in the brain and nervous receptors of acoustical and vestibular devices, which are located in internal ear direct under the RF EMF source. Also the retina and lens of an eye are exposed to EMF. Up till now the world scientific community has no scientific database that can be used to estimate the risk for children, connected with long exposure of daily RF EMF on a developing brain. The appropriate studies of children using mobile telephones and experimental research are absent.

The size of an irradiated field in a brain of the child, and the common absorbed energy of EMF by a brain is more for a child, than for an adult user.

For the first time in the period of civilization, children and teenagers were included as a group of risk. It is necessary to note that the foreign recommended standards are much higher than the Russian standards.

RNCNIRP repeatedly paid attention that health of the present generation of children and future generations is under the danger (11.09.2001, 23.06.2004, 20.03.2008). The Russian SanPiN - 2003 (2.1.8/2.2.4.1190-03, the item 6.9) recommends restriction of the opportunity to use mobile telephones by the persons who have not reached 18 years.

The WHO gives highest priority to the protection of the health of children against probable adverse effect of an electromagnetic field of cellular telephones. Important for an estimation of the seriousness of the problem is the following WHO opinion: "CHILDREN ARE DIFFERENT FROM ADULTS. Children have a unique vulnerability. As they grow and develop, there are "windows of susceptibility": periods when their organs and systems maybe particularly sensitive to the effect of certain environmental threats". WHO, Backgrounder N 3, 2003.

Therefore it is necessary to start an active information and explanation trajectory among parents, teenagers and children, to forbid aggressive advertising designed for this marketing group of the population, and to introduce a precautionary principle more widely.

We call the scientific community of the world not be limited by the numerous discussions about importance of a problem "Mobile telephone and children", and to begin a real study on the risks for children as users of mobile telephones, and also to begin experimental research on the effects of chronic low intensity RF EMF exposure on a developing brain.

Chairman of RNCNIRP,
professor Yu. Grigoryev.

PART 1

Official advice on Wireless Networks (Wlan) and Children
The Logic of the Stewart Report

Here I want to show you that if you follow the logic of the Stewart Report, you will come to the conclusion that there shouldn't be any Wi-Fi in schools

1. Wi-Fi uses the same technology as mobile phone antennae. The radiation frequency used by the 3G network is 2.1GHz and of Wi-Fi 2.45 GHz.
2. This technology has never been pre-market tested and never been shown to be safe.
3. The UK Government's Spectrum Advisory Group recommended that wireless networks be used with the same precautions as recommended in the Stewart Report
4. The Stewart Report S1.42 states ... *the beam of greatest RF intensity.....should not be permitted to fall on any part of the school grounds or buildings without agreement from the school and parents*
5. This was reiterated in the DfES guidelines for schools.
6. The wireless routers/access points are on and emitting radiation all day long inside the school.
7. It has been publicly shown on Panorama that the radiation intensity inside the classrooms of a school with Wi-Fi is the same or higher than as a result of being in the main beam from a mobile phone antenna.
8. Sir William Stewart said he did not want to see phone masts near schools. Logically, therefore, neither should Wi-Fi routers be inside schools

PART 2**Why the Health Protection Agency advice on Wi-Fi cannot be relied upon**

I want to show that the guidelines and opinions currently offered by the HPA on the health effects of Wi-Fi are flawed. The reasons are:

1. The HPA downplay evidence of health damage by carefully chosen responses, misleading statements and selective use of the evidence.
2. The guidelines themselves set up by the ICNIRP are only intended to protect against short term (6 minutes) heat shocks and burns. They do not protect against effects caused by long term 'low' level exposure.
<http://www.icnirp.de/documents/emfgdl.pdf> .
The HPA are still basing the whole of their 'safety' advice on these out of date and inappropriate guidelines.
3. Most astonishing of all, the HPA's very own Chairman, Sir William Stewart, has been publicly calling for caution in the roll-out of this technology, and even wants an investigation into Wi-Fi in schools – he is now at odds with his own organisation which should make people think twice before relying on the HPA advice. He also stated that the WHO recommendations are not an accurate reflection of the science. This is in line with a growing body of scientists who have done research in this area.
4. The NRPB is now part of the HPA, which relies on the research programme run by the MTHR and half funded by the phone industry.
5. All agencies whether it be BECTA, the Departments of Health or of Education, rely upon the HPA for advice.

UK media and the Wi-Fi debate

The Times started the debate on Wi-Fi in schools in November 2006 when it reported that schools were dismantling Wi-Fi at the request of parents who had become aware of the research and the fact that the ICNIRP guidelines which the UK subscribe to are only intended to protect against short term heating effects despite the fact that there is much evidence for other biological effects at exposures below these guidelines as evidenced in the Stewart Report

<http://www.timesonline.co.uk/article/0,,2-2461748.html>

http://www.timesonline.co.uk/tol/life_and_style/health/features/article665419.ece

In April, the Sunday Independent leaked the fact that Panorama had staged a 'coup', an interview with the rarely seen and most eminent establishment scientist, Sir William Stewart, Chairman of the Health Protection Agency, HPA.
<http://news.independent.co.uk/health/article2472133.ece>

PART 3**If we cannot rely upon the HPA, who can we rely on for evidence and what are other official bodies doing?**

There are other authoritative bodies and independent scientists one can look to as follows:

1. The International Commission for Electromagnetic Safety, ICEMS

This body was set up specifically to look at the safety issue of non-ionising radiation such as that used in mobile phone and WiFi technology.

In September 2006, 47 scientists signed a resolution in Benevento, Italy.

<http://www.icems.eu/>

Excerpts as follows:

3. There is evidence that present sources of funding bias the analysis and interpretation of research findings towards rejection of possible public health risks

4. Arguments that weak (low intensity) EMF cannot affect biological systems do not represent the current spectrum of scientific opinion

5.biological effects can occur from exposures to both extremely low frequency fields and radiation frequency fields. Epidemiological and in vivo as well as in vitro experimental evidence demonstrates that exposure to some ELF EMF can increase cancer risk in children and induce other health problems in both children and adults.....

6. We encourage governments to adopt a framework of guidelinesthat reflect the Precautionary Principle, as some nations have already done. (The Precautionary Principle shifts the burden of proof to those who discount a risk) These strategies should include:

6.1. Promote alternatives to wireless communication systems e.g. ...use of fibre optics and coaxial cables....

2. Examples of advice by foreign health authorities and local authorities

The Public Health Dept of the Salzburg Government has issued advice not to use WLAN in schools and nurseries.

http://www.buergerwelle.de/pdf/wlan_dect_in_schools_and_kindergardens.pdf

A year ago the Frankfurt Local Education Authority banned wireless networks in schools as they 'did not wish to conduct a „large scale human experiment“

<http://omega.twoday.net/stories/3974159/>

WiFi

1. European Governments and WiFi (WLAN)

- In September 2007 the EU European Environment Agency called for immediate action to reduce exposure to radiation from WiFi and mobile phones.¹ Professor Jacqueline McGlade, the EEA's executive director, said: "Recent research and reviews on the long-term effects of radiations from mobile communications suggest that it would be prudent for health authorities to recommend actions to reduce exposures, especially to vulnerable groups, such as children."

The EEA referred to the scientific review of August 2007 by the international BioInitiative Working Group of leading scientists and public health experts who looked at 2000 research studies and concluded that "the existing standards for public safety are inadequate to protect public health."² (For details of the BioInitiative see accompanying document 2 on scientific papers.)

The EEA also referred to the EU funded REFLEX Study³ of 2004 which showed that non-ionising radiation could damage the genes of human cells. (See document 2.)

- In Austria the official advice of the Public Health Department of the Salzburg region is not to use WiFi in their schools. Dr Gerd Oberfeld stated: "Based on first empirical evidence from sensitive people the signal seems to be very 'biologically active'. The symptoms seen so far are the same seen in base station studies: headaches, concentration difficulties, restlessness, memory problems etc."⁴ Dr Oberfeld was involved in the study - *The microwave syndrome: a preliminary study in Spain* (2003)⁵. He also worked on 2 subsequent studies. (Please see base station studies listed in document 2.)
- In July 2007 the German government warned its citizens to avoid using WiFi. The Environment Ministry said that WiFi should be avoided and preference given to "conventional wired systems."⁶

This followed questions raised in Germany's parliament, the Deutscher Bundestag, where reference was made to Professor Lawrie Challis's statement that children should not place wireless-enabled laptops on their laps.⁷ (Professor Challis is the former chairman of the UK Mobile Telecommunications Health Research Programme.) He had referred to a Swiss scientific study which showed that levels of emissions at 2 cm from a laptop were similar to that of a mobile phone. He said: "Since we advise that children should be discouraged from using mobile phones, we should also discourage children from placing their laptop on their lap when they are using wi-fi."⁸

Also in this parliamentary discussion it was established that the government were "...actively informing people about possibilities for the reduction of personal exposure. This includes, among other things, information leaflets and brochures; instructional material for schools on the theme of mobile telecommunications." It was also acknowledged that "the question about the age-dependent energy absorption and energy distribution has not yet been satisfactorily answered." Reference was also made to their own research which was mainly on exposures and it was stated that



WLAN networks can "... definitely dominate the exposures from other telecommunications services if an appropriate distance from the transmitter (access point or terminal) is not kept."

In 1996 the German Federal Institute for Telecommunication had commissioned a German study of 878 Russian research studies of the previous 36 years into the biological effects of high-frequency electromagnetic radiation⁹.

The government would have been aware of numerous appeals (See document 2) sent to them by medical doctors from around Germany such as the Bamberger Appeal of 2005.¹⁰ This stated with reference to WiFi: "Urgent suspicions of serious health damage from pulsed high frequency electromagnetic fields... at levels below guidelines." Also the Kompetenz Initiative¹¹ was signed by 56 international scientists.

Germany's Federal Office for Radiation Protection also advises its citizens to use corded landlines wherever possible rather than mobile phones or cordless phones.¹²

- In June 2006 Frankfurt's Local Education Authority banned the use of WiFi in its schools.¹³

They were concerned that the effects found in scientific studies included EEG changes, lack of concentration, negative influences on the hormone, immune and central nervous systems, disruption of cell communication and opening of the blood-brain barrier. It was said: "Radiation strengths which are proven to cause EEG changes have no right to be present in schools." The teachers' union GEW¹⁴ referred to a review of 220 peer-reviewed published studies by the ECOLOG Institute of Hanover in May 2000.¹⁵ (See document 2.)

Also reference was made to the EU REFLEX study, which showed a genotoxic effect on human cell cultures. This study followed the results found in 1995¹⁶ and 1996¹⁷ by Dr's Lai and Singh, which used the same frequency that WiFi uses (2.4 GHz).

- In March 2007 the Bavarian Parliament recommended to all schools in the Land not to use Wifi.¹⁸ The hearing in parliament stated that children should not be exposed to radiation from WiFi, stating that it was important to avoid damage in such an early phase of life. The fact that children are thought to be more vulnerable to this form of radiation was established in the Independent Expert Group on Mobile Phones 2000 (IEGMP-the Stewart Report)¹⁹. Studies have shown that children absorb considerably more radiation, their nervous systems are still developing and they will have a longer lifetime cumulative exposure.²⁰
- The government of Sweden officially recognises electrosensitivity as an established medical condition. In their schools, if only one child reacts to the presence of electromagnetic fields, then if WiFi is present it is removed.²¹ (If the radiation is from an external source then the classrooms are protected with shielding materials.)
- In January 2008 the French Health Ministry issued a warning against excessive mobile phone use, especially by children, in view of studies indicating long-term

dangers.²² Parents are advised that they should prevent children from using mobiles for longer than 6 minutes.

Also a decision was made that there should be a moratorium on the use of WiFi in Paris libraries after 40% of the librarians reported adverse health effects.²³

In March 2002 Dr Roger Santini had presented a paper to a French Parliamentary Office: *Arguments in favour of applying the precautionary principle to counter the effects of mobile phone base stations.*²⁴ This important overview paper, with 37 scientific references, included studies in which biological effects are reported in the vicinity of mobile phone base stations and other transmitters. Dr Santini referred to the Latvian study of school children in which the pulsed signal was of a similar intensity to WiFi. This has relevance because it showed that "...motor function, memory and attention significantly differed between the exposed and control groups." (See document 2, Kolodynski AA and Kolodynska VV.²⁵)

- In August 2005 **The Vienna Chamber of Doctors** warned of the "high radiation exposure" of WiFi. They also stated that; "Children under 16 years should not use mobile phones."²⁶

The reason they gave for their position was: "...the recently presented **REFLEX** study in which a definite genotoxic effect of mobile phone radiation was proven." They also referred to other studies: "Previous earlier animal experiments already showed a dose-dependant genotoxic effect under high frequency radiation. Two epidemiological studies showed a three-to-four fold increased risk for auditory nerve cancers after ten years of mobile phone use."

Outside Europe.

- In Russia scientists have been studying the effects of low-level microwave radiation for decades. (In 1997 Professor Karl Hecht made a review of 878 Russian studies which was prepared for the German government and covered the period 1960-1996²⁷) (See document 2.)

The Russian National Committee on Non-Ionising Radiation Protection (RNCNIRP) in 2002 gave the following precautionary recommendations:

1. Children under the age of 16 should not use mobile phones.
 2. Pregnant women should not use mobile phones.
 3. The duration of calls should be limited to a maximum of three minutes, and after making a call the user should wait a minimum of 15 minutes before making another call.
 4. Manufacturers of mobile phones should give the above information together with the radiation exposure levels of each phone.
- The Canadian Human Rights Commission in 2007 recognised electrosensitivity as an environmental sensitivity.²⁸

DANGERS OF WIFI

Voice's general secretary: "the government is avoiding the issue"

On the 8th May ePolitix.com posted a conversation with Philip Parkin, general secretary of Voice, the union for education professionals.



Question: "Do you think government has fully grasped the potential long-term consequences of wi-fi in schools?"

Philip Parkin: "No, the government has not. The government is avoiding the issue. I would not like to say that there are industrial or overriding interests involved in this but there is no question that the large communications organisations are quite powerful. We are not trying to turn back the tide as far as technology is concerned but we have to be sure that as well as doing a job for us, and there is no question that wi-fi does a wonderful job, we have to be absolutely sure that it is safe.

This is something the government has not been prepared to grasp. We have been talking about this for nearly three years. I am very pleased and interested to see that finally some of our colleagues in the other teaching associations have started to show some interest in this. At ATL's conference over Easter a motion was passed mandating their leadership to lobby the government on the potential dangers. I am very pleased to have other people on board with our campaign."

Dangers of WiFi to children

A letter by Grethe Hooper Hansen in the Times Educational Supplement of 5th June 2009 highlighted "three dimensions of danger in ICT: physical, intellectual and psychological.

Some public schools have long since dismantled wi-fi, which bathes children in electromagnetic radiation, causing hyperactivity, lack of concentration and long-term neural and physical problems."

WiFi does make me ill

This posting was taken from Yahoo Answers on 1st January 2009: "Resolved Question".

Is WiFi making me sick?

10 days ago I got WiFi in my apartment and have had it constantly switched on, and I have been feeling sick, dizzy, aching and even having visual problems since. My blood pressure has even risen very high and I keep feeling my heart beat very strongly now and again. I went out today and after a while I felt okay again, then came home and it started again. Could there be a connection? I hear 3 in 100 people are sensitive to such things. I've also had blank spots where I couldn't see for a while in certain areas, and firework-like movements when I close my eyes.

Asker's reply to suggestion that it was a case of ES:

Thanks for the information. I turned it off 3 days ago, my headaches have gone, no problems with my vision and my blood pressure is now LOW (i.e. because I am taking pills for high blood pressure, under normal circumstances without the WiFi the pills are now bringing it down too low!!)

Dangers of electrosm

Dr Havas, a scientific adviser to ElectroSensitivity UK, has written an Open Letter warning of research on the dangers of WiFi, especially for children in schools.

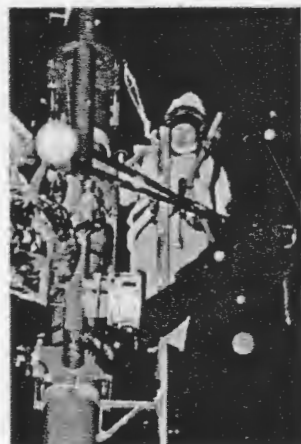
She states that the lowest guidelines are in Salzburg and Liechtenstein, at 0.1 microW/cm² (0.6 V/m) and 1 in Switzerland; in Canada it is 1000 microW/cm² (61 V/m). This is because Canada's guidelines are based on a short-term (6-minute) heating effect, and not the reported biological effects including increased permeability of the blood brain barrier, increased calcium flux, increase in cancer and DNA breaks, induced stress proteins, and nerve damage. Exposure to this energy is associated with altered white blood cells in school children; childhood leukemia; impaired motor function, reaction time, and memory; headaches, dizziness, fatigue, weakness, and insomnia.

She also refers to the growing problem of "electro-hyper-sensitivity" (EHS) which is recognized as a disability in Sweden. The World Health Organization defines EHS as: "... a phenomenon where individuals experience adverse health effects while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs). . . EHS is a real and sometimes a debilitating problem for the affected person."

She notes that libraries in France are removing WiFi, the Vancouver School Board passed a resolution in January 2005 prohibiting construction of cellular antennas within 1000 feet (305 m) from school property, Palm Beach, Florida, Los Angeles, California, and New Zealand have all prohibited cell phone base stations and antennas near schools. She notes in addition that advisories limiting cell phone use have been issued by the UK (2000), Germany (2007), France, Russia, India, Belgium (2008) as well as the Toronto Board of Health (2008) and the Pittsburgh Cancer Institute (2008).



Health protection in action



A member of the AB-Strahl group chained herself to an O2 mast at St Märgen near Freiburg on 11th December, according to Next-up news. The mast was put out of action to create a White Zone where EHS people can live during the winter. A riot police squad was sent and cut through the chains. "We'll continue to fight for the creation of White Areas because people who are electrosensitive (EHS) just do not have any other way to live," Ulrich Weiner said.



pictures courtesy of Next-up.

Stuttgart demonstration on electro-magnetic dangers

There was a large demonstration in Stuttgart on Saturday 14th November against government failure to act over the dangers of electro-magnetic fields and radiation.

Masts banned for health reasons

The Economic Times on 7th December reported that the Rajasthan government has banned the installation of some mobile masts in the state. There are seven telecom operators with more than 15,000 masts in the state.

open spaces like parks and agricultural land. A UDH official said: "There have been a few studies which say that electro-magnetic radiation emitting from these towers are a threat to human health.

The new policy would bar installation of any such mast in a medical or educational institution and permission would be given only for

There has to be some check on these towers especially in residential and institutional areas."

France leads the way – fibre optic cables

* To remove the health dangers of WiFi, Wimax, digital TV and digital Radio, the départements of the Drôme and the Ardèche in France are aiming by July 2010 to replace wireless with fibre-optic cables, at a cost of 123 M€ (184 M\$). This will cover 100% of the population of 0.95 million, connecting 372,000 homes via the ordinary phone line through 213 switchboards.

It will provide ultra high speed broadband connection (100 Mbps) without any loss of signal due to distance, for a "triple play" service of Internet, telephone and TV. WiFi and WiMax will stop altogether because of their health dangers.

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OPEN LETTER: Medical Officer of Health -- WiFi in Schools, September 29, 2010

Could you please consider making a public announcement about the potentially harmful effects of WiFi radiation in the school environment. Specifically, that schools should reconsider placing WiFi in the classroom for continuous daily exposure and that those schools that already have WiFi should consider turning the WiFi off when not in use, and disconnecting WiFi that is never used, in kindergartens for example.

I ask this based on 15 years of research and thousands of documents showing this radiation may be harmful at low levels, well below Safety Code 6 Guidelines.

1. Recent report by the **Ontario Agency for Health Protection and Promotion (2010)** which acknowledges potentially adverse health effects associated with cell phone use after 10 years of exposure and living near cell phone towers.
2. **City of Toronto Public Health** requested voluntary reduction of exposure to 1% of Safety Code 6, which would be in line with Russian Guidelines of 10 microW/cm² for cell phone antennas (2000).
3. **City of Toronto Public Health** issued a warning for young children to minimize their use of cell phones (2008).
4. Report by **Royal Society of Canada (1999)** stating that there are biological effects that occur below Safety Code 6 and that these may have harmful health effects and that the guidelines are inadequate to protect the eyes of workers.
5. **Health Canada's Safety Code 6 Report (2009)** that states the following in the Preface:

The purpose of this code is to establish safety limits for human exposure to radiofrequency (RF) electromagnetic energy in the frequency range from 3 kHz to 300 GHz. The safety limits in this code apply to all individuals working at, or visiting, federally regulated sites. These guidelines may also be adopted by the provinces, industry or other interested parties. The Department of National Defence shall conform to the requirements of this safety code, except in such cases where it considers such compliance to have a detrimental effect on its activities in support of training and operations of the Canadian Forces. This code has been adopted as the scientific basis for

considering that the CMO advised against being exposed to this type of radiation, we are therefore, taking a huge and unnecessary risk with our children. Not to mention the health risk to your staff.

The health problems associated with Wi-Fi are not just cancer, which takes time to build up and be diagnosed. No, this type of radiation has been shown to cause diabetes, heart problems, sleeping problems, difficulty concentrating, ADHD, neurological diseases, recurrent infections and irritability, and headaches.

The German Government recently advised against using Wi-Fi at all, and has advised all schools to use a hard wired system. (4) In France, Wi-Fi has been removed from many public and federal areas, for example: Libraries (5)

So why take the risk? When a simple cable can be used instead of Wi-Fi at a small cost.

Please watch BBC's Panorama programme "Wi-Fi A Warning Signal" – 'Electrosensitivity and Wi-Fi discussed'. You can play it online from www.mastsanity.org/wi-fi.html (6).

The Panorama programme is an interesting insight into how these technologies are being used and how they work. Expert reviews from both sides of the party discuss their points of view. The Panorama team went into schools and actually measured the radiation within and around the school rooms and playground area. The conclusion is alarming as more radiation has been discovered within the school than was initially expected. The representative from WHO states there is no reason for concern whilst the UK's Government advisor, Sir William Stewart, Health Protection Agency, states that the Wi-Fi and mobile phone technology needs to be researched far more conclusively before being rolled out in schools.

We owe it to our children, our future, to take all necessary precautions to insure they have a healthy education and lifestyle. So we advise you to remove your Wi-Fi. If you need further information then please feel free to contact us.

Yours Truly

The World Foundation for Natural Science



L. Lipskiene

Laima Lipskiene

Representative for England

Uzbekistan can forbid use of mobile phones by children

Tachkent, Ouzbékistan (UzDaily.com) – A work on creation of legal base, forbidding use of mobile phones by children, is carried out in Uzbekistan. This was announced at the meeting titled "Mobile phones: progress and threats", which was held at the University of World Economy and Diplomacy (UWED).

Sanitary doctor of National Center of State Epidemiologic Supervision Abdurauf Kasumov said: "Doctors already proved that electromagnetic waves, generated by mobile phones; jeopardize health of children and teenagers. Long and frequent communication with mobile phones weakens children organism, causes dysfunction of brain blood circulation, disturbance of nervous system. Parents should regularly control their children and take their health."

Some governments adopted laws, banning use of mobile phones by children, based on such medical conclusions, UZA reported.

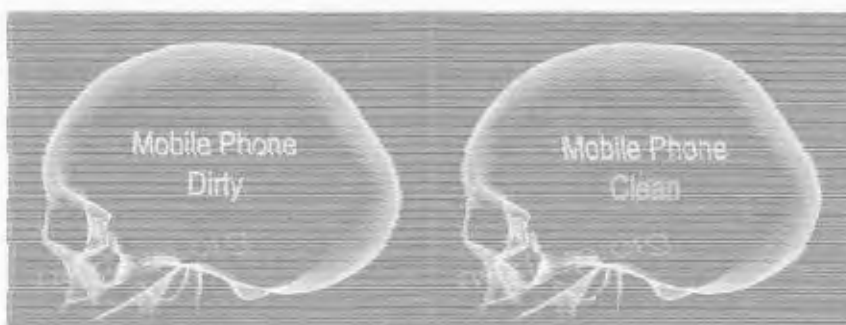
The meeting noted that mobile communication is developing dynamically in Uzbekistan, but there are also negative factors of mobile phones' use.

It was said that mobile phones are used to propagate violence and cruelty, which negatively affect mentality and inner world of teenagers.

It was added that some parents show neglect and indifference to this issue.



Adolescents with their mobile phones in Tachkent. (Ph. Next-up)



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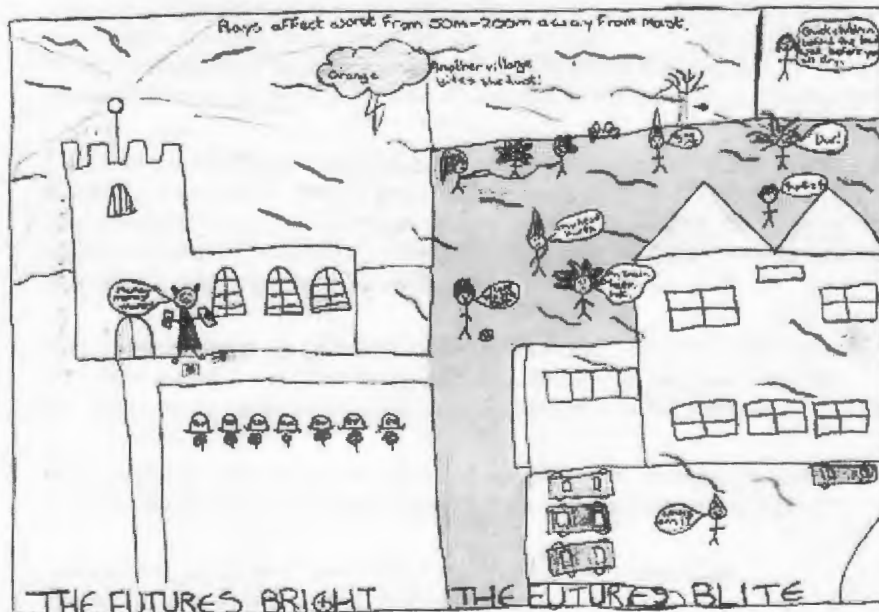
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-----Cellular towers have been banned on school property in San Francisco.

-----<http://www.feb.se/Bridlewood/SCHOOLS.HTM>

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-----Appeals court overturns cell tower ruling (June 2002)

-----<http://www.ledger-enquirer.com/mld/ledgerenquirer/3558116.htm>

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-----FRANCE : Bizet School Antenna Removed

-----PARIS SCHOOL - March 10, 2003

-----<http://www.mayeticvillage.fr/QuickPlace/antennes-relais/Main.nsf> -- **LINK 2**

-----FRANCE : CANCER CASES CAUSE ORANGE TO

-----SUSPEND PHONE MAST OPERATION

-----AT A PARIS SCHOOL

-----Le Monde - March 16 - 2003

Telecom giant Orange has suspended operations at a school phone mast site in Paris after eight cases of cancer were confirmed among children in the district. Over the past few months parents have become increasingly concerned at the presence of two transmitters on the roof of the Ernest-Bizet school complex in the Saint-Cyr-l'Ecole quarter.

Local mayor, Philippe Lavaud who has ordered the on-going health investigation to be extended to the whole district, described the suspension as " a victory for the precautionary principle." The local council recently prohibited the siting of base stations within a 300 metre radius and is also seeking to cancel contracts with telecomm operators agreed by the previous administration.

While welcoming news of the Orange shutdown PRIARTEM, the group campaigning for tighter control over mast siting, said that microwave emissions should be subject to the same tough health regulations that monitor water and air quality.

Orange says it took the decision to cease operations in "response to public concern and to allow the health inquiry to proceed in a calmer atmosphere."

Company spokesmen stressed that the emission levels have been checked and were well within safety guidelines.

Commenting on the report of the case, which appeared in Le Monde, **Winchester phone mast campaigner**, Karen Barratt said she was delighted that some countries were getting tough with the operators and hoped the British Government would follow suit. It has recently come to light that many operators are bypassing the planning process completely by saying permission is not required for antennae on existing buildings or those hidden inside church towers and petrol station signs. Planning Minister, Lord Rooker has